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November 20, 2017

VIA HAND DELIVERY

Ms. Gwen Pinson, Executive Director
Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, KY 40602

Re: PSC Case No. 2017-00376

Dear Ms. Pinson:

Please find enclosed for filing with the Commission in the above-referenced case an original and ten copies of the Application of East Kentucky Power Cooperative, Inc. ("EKPC"). In addition, EKPC is filing an original and ten copies of a Motion for Confidential Treatment and a Motion for a Filing Deviation in the same case. Along with the Motion for Confidential Treatment, EKPC is filing one copy of un-redacted documents containing confidential information under seal.

Please return a file stamped copy of this filing to my office.

Sincerely,

David S. Samford

Enclosure

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)))))))))	**CASE NO. 2017-00376**

MOTION FOR CONFIDENTIAL TREATMENT

Comes now East Kentucky Power Cooperative, Inc. ("EKPC"), by and through counsel, pursuant to KRS 61.878, 807 KAR 5:001, Section 13 and other applicable law, and for its Motion requesting that the Kentucky Public Service Commission ("Commission") afford confidential treatment to information contained in exhibits to the Application filed in the above-captioned proceeding, respectfully states as follows:

1. In its Application, EKPC requests the Commission to enter an Order: approving EKPC's proposed amendment of its Environmental Compliance Plan ("Compliance Plan"); granting authority to recover the costs associated with said Compliance Plan amendment through its existing environmental surcharge; issuing a Certificate of Public Convenience and Necessity ("CPCN") for the facilities associated with said Compliance Plan amendment; and allowing the settlement of certain Asset Retirement Obligations and regulatory asset.

2. Attached to the Application as Exhibits A, C and D, which are maps to suitable scale showing the location or route of the proposed construction or extension, as well as the location to scale of like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of the other facilities. The maps of the Spurlock Station show transmission lines owned by EKPC as well as transmission lines owned by Kentucky Utilities Company and Kentucky Power Company. These maps contain detailed information regarding the location and characteristics of the transmission lines as well as the location of other utility facilities currently located on or near the site.

3. Attached to the Application as Exhibit J is the testimony of Robin Hayes. Attached to Ms. Hayes' testimony as Exhibit RH-1 is a summary of the economic analysis performed on behalf of EKPC. Exhibit RH-1 contains a detailed economic analysis of the present value of the CCR/ELG Project which is the subject of the proposed Compliance Plan amendment as well as a second option closely evaluated by EKPC that involved the conversion of the Spurlock Station Unit 1 and Unit 2 to natural gas.

4. The maps and economic analysis are being tendered in redacted form in the public version of EKPC's filing and in an un-redacted form filed under seal herewith. These documents are hereinafter referred to as the "Confidential Information."

5. The Confidential Information contains extensive information that describes the location of transmission lines and critical energy infrastructure information pertaining to the physical facilities for generating and transmitting electricity. The Confidential Information also contains sensitive economic data for EKPC. This information is commercially sensitive and proprietary.

6. The Confidential Information is retained by EKPC on a "need-to-know" basis and is not publicly available. The Confidential Information includes critical energy infrastructure information that describes the physical location and characteristics of vital energy facilities of EKPC and others. This information would be useful to those looking to disrupt, damage or destroy the equipment and facilities of EKPC and others. In addition, the disclosure of the Confidential Information would give potential bidders and contractors a tremendous competitive advantage in seeking to secure the work called for in the CCR/ELG Project Scoping Report. These advantages would likely translate into higher project costs for EKPC and, by extension, detrimentally higher rates for EKPC's owner-members. Thus, disclosure of the Confidential Information would be highly prejudicial to EKPC, EKPC's owner-members and those owner-members' retail members.

7. The Kentucky Open Records Act exempts the Confidential Information from public disclosure. *See* KRS 61.878(1)(c),(m). As set forth above, disclosure of the Confidential Information would permit an unfair advantage to third parties. Moreover, the Kentucky Supreme Court has stated, "information concerning the inner workings of a corporation is 'generally accepted as confidential or proprietary.'" *Hoy v. Kentucky Industrial Revitalization Authority*, 907 S.W.2d 766, 768 (Ky. 1995). Because the Confidential Information is critical to EKPC's effective execution of business decisions and strategy, it satisfies both the statutory and common law standards for being afforded confidential treatment.

8. Likewise, KRS 61.878(1)(m)(1) protects "[p]ublic records the disclosure of which would have a reasonable likelihood of threatening public safety by exposing a vulnerability in preventing protecting against, mitigating, or responding to a terrorist act…," and specifically exempts from public disclosure certain records pertaining to public utility critical systems. *See* KRS 61.878(1)(m)(1)(f). If disclosed, the portion of the Confidential Information which contains

critical energy infrastructure information could be utilized to commit or further a criminal or terrorist act, disrupt critical public utility systems, and/or intimidate or coerce the civilian population. Disclosure of the Confidential Information could result in the disruption of innumerable other infrastructure systems which relate to, or rely upon, the safe and reliable provision of electricity. Moreover, disclosure of the Confidential Information could have a reasonable likelihood of threatening the public safety. Maintaining the confidentiality of all the Confidential Information relating to energy infrastructure is necessary to protect the interests of EKPC, EKPC's owner-members, those owner-members' retail members, and the region at large.

9. EKPC does not object to limited disclosure of the Confidential Information, pursuant to an acceptable confidentiality and nondisclosure agreement, to the Attorney General or any other intervenors with a legitimate interest in reviewing the same for the sole purpose of participating in this case.

10. In accordance with the provisions of 807 KAR 5:001, Section 13(2), EKPC is filing one copy of the Confidential Information separately under seal. Confidential treatment is sought for the entirety of the maps and economic analysis attached as Exhibits A, C and D to the Application and Exhibit RH-1 of Robin Hayes testimony attached as part of Exhibit J to the Application.

11. In accordance with the provisions of 807 KAR 5:001, Section 13(3), EKPC respectfully requests that the Confidential Information be indefinitely withheld from public disclosure. This will assure that the Confidential Information will be less likely to include information that continues to be commercially sensitive or critical energy infrastructure information so as to impair the interests of EKPC if publicly disclosed.

WHEREFORE, on the basis of the foregoing, EKPC respectfully requests the Commission to enter an Order granting this Motion for Confidential Treatment and to so afford such protection from public disclosure to the un-redacted copies of Confidential Information, which is filed herewith under seal, for an indefinite period of time.

This 20th day of November, 2017.

Respectfully submitted,

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COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)	**CASE NO. 2017-00376**

MOTION TO DEVIATE FROM FILING REQUIREMENTS

Comes now East Kentucky Power Cooperative, Inc. ("EKPC"), by counsel, and hereby moves the Kentucky Public Service Commission ("Commission") to grant EKPC a deviation pursuant to 807 KAR 5:001 Section 22, from the filing requirements contained in 807 KAR 5:001 Section 15(2)(d)(2) and 807 KAR 5:001 Section 4(9), respectfully stating as follows:

On November 20, 2017, EKPC filed an Application requesting the Commission to enter an Order: approving EKPC's proposed amendment of its Environmental Compliance Plan ("Compliance Plan"); granting authority to recover the costs associated with said Compliance Plan amendment through its existing environmental surcharge; issuing a Certificate of Public Convenience and Necessity ("CPCN") for the facilities associated with said Compliance Plan amendment; and allowing settlement of certain Asset Retirement Obligations and regulatory asset. As part of the requirements for the CPCN filing, 807 KAR 5:001 Section 15(2)(d)(2) requires the

applicant to file "plans and specifications and drawings of the proposed plant, equipment, and facilities." EKPC has attached as Exhibit D to its Application a map of the proposed construction involved in the CCR/ELG Project. EKPC is also providing preliminary plans and specifications for the CCR/ELG Project in an appendix to Attachment SY-2 to Sam Yoder's testimony (Exhibit K to the Application), which is the CCR/ELG Project Scoping Report completed by Burns and McDonnell Engineering Company, Inc. While additional design work is being undertaken, the maps, plans and specifications set forth in Exhibit D and the appendix of Attachment SY-2 to Exhibit K are currently the most detailed drawings available to EKPC. To the extent more detailed plans and specifications will be created during the pendency of this proceeding, EKPC will be pleased to file these documents once they are available.

In addition, 807 KAR 5:001 Section 4(9) requires that all documents filed with the Commission shall be filed in a paper format unless electronic filing procedures established in 807 KAR 5:001 Section 8 are utilized. As part of Attachment JP-1 to Exhibit H, the direct testimony of Jerry Purvis, EKPC is filing a permit application that relates to the proposed CCR/ELG Project. The Attachment is voluminous, including 1,244 pages. This case has not been established as an electronic filing procedures case. EKPC therefore requests Commission approval to file one paper copy of the Attachment with the original copy of its Application and to file the additional required copies of the Attachment in a portable document format on a compact disc. By doing so, EKPC will avoid considerable cost associated with making copies amounting to nearly 15,000 pieces of paper.

WHEREFORE, on the basis of the foregoing, EKPC moves the Commission to grant EKPC a deviation pursuant to 807 KAR 5:001 Section 22 for the filing requirements contained in: 1) 807 KAR 5:001 Section 15(2)(d)(2), and thereby allow the documents filed as Exhibit D and in

the appendix to Attachment SY-2 of Exhibit K to its Application to satisfy the requirements of the filing regulation; and 2) 807 KAR 5:001 Section 4(9), and thereby allow EKPC to file one paper copy or Attachment JP-1 to Exhibit H.

This 20th day of November, 2017.

Respectfully submitted,

David S. Samford (by Mark D. Goss)

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Counsel for East Kentucky Power Cooperative, Inc.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)	**CASE NO. 2017-00376**

APPLICATION

Comes now East Kentucky Power Cooperative, Inc. ("EKPC"), by counsel, pursuant to KRS 278.020, KRS 278.183, 807 KAR 5:001 and other applicable law, and hereby requests the Kentucky Public Service Commission ("Commission") to enter an Order: approving EKPC's proposed amendment of its Environmental Compliance Plan ("Compliance Plan"); granting authority to recover the costs associated with said Compliance Plan amendment through its existing environmental surcharge; issuing a Certificate of Public Convenience and Necessity ("CPCN") for the facilities associated with said Compliance Plan amendment; settlement of certain Asset Retirement Obligations ("ARO") and regulatory assets; and awarding any other relief to which EKPC may be entitled, respectfully stating as follows:

I. Introduction

1. EKPC requests Commission authorization to amend its Compliance Plan to include a project that is necessary to comply with the Disposal of Coal Combustion Residuals ("CCR")

from Electric Utilities Rule ("CCR Rule") and the Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("ELG Rule") and other environmental requirements and obligations that arise from the use of coal in the generation of electric energy. In conjunction with its request to amend its Compliance Plan and seek issuance of an appropriate CPCN, EKPC also proposes to recover the costs associated with these activities through its environmental surcharge pursuant to KRS 278.183.

II. Background

A. General Filing Requirements

2. Pursuant to 807 KAR 5:001 Section 14(1), EKPC's mailing address is P.O. Box 707, Winchester, Kentucky 40392-0707. EKPC's electronic mail address to receive service is psc@ekpc.coop. Applicant's counsel should be served at mdgoss@gosssamfordlaw.com and david@gosssamfordlaw.com.

3. Pursuant to 807 KAR 5:001, Section 14(1), the grounds for EKPC's request for an amendment of its Compliance Plan, recovery of costs through its environmental surcharge and issuance of a CPCN are set forth below.

4. Pursuant to 807 KAR 5:001, Section 14(2), EKPC is a Kentucky corporation, in good standing, and was incorporated on July 9, 1941.

B. Overview of East Kentucky Power Cooperative, Inc.

5. EKPC is a not-for-profit, rural electric cooperative corporation established under KRS Chapter 279 with its headquarters in Winchester, Kentucky. Pursuant to various agreements, EKPC provides electric generation capacity and electric energy to its sixteen owner-member Cooperatives ("owner-members"), which in turn serve approximately 530,000 Kentucky homes, farms and commercial and industrial establishments in eighty-seven (87) Kentucky counties.

EKPC's Board has stated its strategic objective is to maintain a generation fleet that prudently diversifies its fuel sources while maximizing its capital investments and minimizing stranded assets.

6. EKPC is a "utility" as that term is defined in KRS 278.010(3)(a) and a "generation and transmission cooperative" as that term is defined in KRS 278.010(9). Each of EKPC's sixteen owner-members is a "utility" under KRS 278.010(3)(a), as well as a "distribution cooperative" under KRS 278.010(10) and a "retail electric supplier" under KRS 278.010(4).

7. In total, EKPC owns and operates a total of approximately 2,965 MW of net summer generating capability and 3,267 MW of net winter generating capability. EKPC owns and operates coal-fired generation at the John C. Cooper Station in Pulaski County, Kentucky (341 MW) ("Cooper Station") and the Hugh L. Spurlock Station in Mason County, Kentucky (1,346 MW) ("Spurlock Station"). EKPC also owns and operates natural-gas fired generation at the J. K. Smith Station in Clark County, Kentucky (753 MW (summer)/989 MW (winter)) ("Smith Station") and the Bluegrass Station in Oldham County, Kentucky (501 MW (summer)/567 MW (winter)), and landfill gas-to-energy facilities in Boone County, Laurel County, Greenup County, Hardin County, Pendleton County and Barren County (16 MW total). In November 2017, EKPC added a Community Solar facility (8 MW) in Winchester, Kentucky to its generation portfolio. Finally, EKPC purchases hydropower from the Southeastern Power Administration at Laurel Dam in Laurel County, Kentucky (70 MW), and the Cumberland River system of dams in Kentucky and Tennessee (100 MW). EKPC's record peak demand of 3,507 MW occurred on February 20, 2015.

8. EKPC owns 2,940 circuit miles of high voltage transmission lines in various voltages. EKPC also owns the substations necessary to support this transmission line

infrastructure. Currently, EKPC has seventy-four (74) free-flowing interconnections with its neighboring utilities.

C. The Spurlock Station

9. EKPC's largest coal-fired electric generation facility is the Spurlock Station located a few miles west of downtown Maysville, Kentucky.[1] The Spurlock Station is situated along the Ohio River and consists of four electric generation units. Spurlock Station Unit #1 ("Spurlock 1") began commercial operation on September 1, 1977. It has a net capacity of 300 MW. Spurlock Station Unit #2 ("Spurlock 2") became operational on March 2, 1981. At 510 MW of net capacity, it is the largest electric generation unit at the Spurlock Station. Spurlock 1 and Spurlock 2 are both conventional, pulverized coal units. Spurlock Station Unit #3 is known as the E. A. Gilbert Unit ("Gilbert Unit") and began commercial operations on March 1, 2005. The Gilbert Unit utilizes a Circulating Fluidized Bed ("CFB") technology and boasts a net generating capacity of 268 MW. Spurlock Station Unit #4 ("Spurlock 4") is a sister unit to the Gilbert Unit and also has 268 MW of generating capacity. Spurlock 4 became operational on April 1, 2009. The combined coal storage capacity of the Spurlock Station is 490,000 tons and the Spurlock Station primarily burns a range of eastern bituminous coals delivered by barge.

10. EKPC has already heavily invested in environmental control equipment at the Spurlock Station. Spurlock 1 is equipped with low NOx burners, selective catalytic reduction ("SCR") technology, a cold-side electrostatic precipitator ("ESP"), a wet flue gas desulfurization ("FGD") scrubber; and a wet ESP. Spurlock 2 is equipped with low NOx burners, SCR technology, a hot-side ESP, wet FGD scrubber and a wet ESP. The Gilbert Unit and Spurlock 4

[1] An aerial image of the Spurlock Station with its major components labeled is attached hereto and incorporated herein as Exhibit A. The Exhibit is subject to a motion for confidential treatment filed herewith.

employ CFB combustion technology which in itself is an environmental control technology. The Gilbert Unit and Spurlock 4 are further equipped with selective non-catalytic reduction technology, flash dry absorber dry FGD scrubbers and baghouses.

11. The four units at the Spurlock Station are among the least expensive electric generation units in the EKPC fleet and have maintained favorable capacity factors following EKPC's full integration into the Reliability Pricing Model ("RPM") Energy Market administered by PJM Interconnection, LLC ("PJM"). Likewise, prudent management practices have assured that the Spurlock Station's units have a high availability factor. In light of the consistent availability and low-cost operations, the Spurlock Station's units are the workhorses of the EKPC electric generation fleet.

12. Through a three-party agreement involving EKPC and Fleming-Mason Energy Cooperative Corporation,[2] the Spurlock Station has a unique commercial relationship with International Paper Company ("International Paper"). International Paper operates a recycling facility that manufactures corrugated paper at a facility located adjacent to the Spurlock Station. International Paper is one of the larger employers in Mason County, Kentucky, and has a peak electrical load of approximately 24 MW and an equivalent of 29 MW of steam load. The steam for International Paper's industrial process is supplied primarily from Spurlock 2, however, Spurlock 1 is also able to supply steam when necessary. Historically, International Paper operates twenty-four (24) hours a day, three hundred sixty-five (365) days of the year, which requires a reliable supply of steam to sustain the manufacturer's operations.

[2] As with other large industrial loads, Fleming-Mason (as the owner-member) serves and bills International Paper for its electric load.

D. Overview of Applicable Environmental Regulations

1. Environmental Regulations Not Implicated By This Filing

13. Electric utilities are among the most heavily environmentally regulated companies in the United States. For instance, EKPC currently complies with nearly a dozen federal rules that have been promulgated under the authority of the Clean Air Act ("CAA"), including: New Source Performance Standards ("NSPS"); New Source Review ("NSR"); Title IV of the CAA, including rules governing pollutants that contribute to acid deposition ("Acid Rain Program"); Title V operating permit requirements ("Title V"); Mercury and Air Toxics Standards ("MATS"); summer ozone trading program requirements promulgated after the United States Environmental Protection Agency ("EPA") acted upon Section 126 Petitions and the Ozone State Implementation Plan Call ("Summer Ozone Program"); National Ambient Air Quality Standards ("NAAQS") for Sulfur Dioxide ("SO_2"), Nitrogen Dioxide ("NO_2"), Carbon Monoxide ("CO"), Ozone, Particulate Matter ("PM"), Particulate Matter of 2.5 microns or less ("PM 2.5") and Lead; the Cross State Air Pollution Rule ("CSAPR"); and the Regional Haze Rule. The obligations imposed by the CAA and accompanying EPA regulations are costly for consumers.

14. In addition to the foregoing federal mandates arising under the CAA, EKPC was preparing to comply with the Clean Power Plan ("CPP") as proposed by the Obama Administration.[3] However, due to recent action by newly-appointed EPA Administrator Scott Pruitt, EKPC has suspended its compliance planning and awaits further guidance from federal and state environmental regulators as to whether the CPP will be pursued further.

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[3] While seeking to comply with the CPP, EKPC was also one of the lead plaintiffs in a legal challenge to the legality of the EPA's proposed rule. *See National Rural Electric Cooperative Association, et al. v. U.S. Environmental Protection Agency,* Case No. 15-1376 (D.C. Cir. Filed Oct. 23, 2015). On February 9, 2016, the U.S. Supreme Court issued an Order preventing the EPA from enforcing the CPP until such time as the pending legal challenge is resolved. *See Basin Electric Power Cooperative, et al., v. U.S. Environmental Protection Agency, et. al.,* Case No. 15A776 (U.S. Sup. Ct., Feb. 9, 2016).

15. EKPC must also comply with additional obligations imposed by and under the authority of the Clean Water Act ("CWA"). For instance, the 316(b) Rule applies to cooling water intake structures to limit aquatic impingement and entrainment mortality. EKPC also complies with all existing Kentucky Pollutant Discharge Elimination System ("KPDES") requirements imposed by the Kentucky Energy and Environment Cabinet's Division of Water ("Division of Water").

2. The Coal Combustion Residuals Rule and the Effluent Limitation Guidelines Rule

16. The two additional environmental regulations that necessitate the amendment of EKPC's Compliance Plan are the CCR Rule and the ELG Rule.

17. The CCR Rule was first published in its proposed form by the EPA on June 21, 2010. Initially, the EPA offered alternative methods for classifying CCR materials (fly ash, bottom ash, boiler slag and flue gas desulfurization materials) as either hazardous or non-hazardous, "special" waste under Subtitle C of the Resource Conservation and Recovery Act ("RCRA") or as a solid waste under Subtitle D of the RCRA. Under either proposal, the EPA stated that it supported and endeavored to maintain the beneficial reuse of CCR material. Ultimately, the EPA's final CCR Rule was issued on December 19, 2014 and determined that CCR is a solid waste, classified as non-hazardous. The final CCR Rule,[4] which became effective October 19, 2015, applies to owners and operators of new and existing landfills and new and existing surface impoundments (including all lateral expansions of such landfills and surface impoundments) where CCR material is disposed. The CCR Rule also has applicability to inactive CCR surface impoundments.[5] The principal objectives of the CCR Rule are as follows: (1) to impose structural

[4] *See* 80 Fed. Reg. 21302 (April 17, 2015).

[5] The CCR Rule does not apply to: CCR landfills that ceased receiving CCR materials prior to the effective date of the CCR Rule; CCR landfills and impoundments at facilities that have ceased producing electricity prior to the

integrity requirements to reduce the risk of catastrophic failure of CCR landfills and impoundments; (2) protecting groundwater through monitoring and corrective actions, location restrictions and landfill and impoundment liner design criteria; (3) adopting operating criteria for CCR landfills and impoundments; (4) record-keeping, notification and publicly-available internet website posting obligations; (5) obligations for inactive CCR landfills and impoundments; (6) administration of state programs to implement the CCR Rule; (7) CCR landfill and impoundment closure obligations; and (8) guidelines for beneficial reuse of CCR materials.

18. The ELG Rule was published in its proposed form by the EPA on June 7, 2013. The ELG Rule established revised technology-based effluent limitations and standards for various wastewater streams generated by coal-fired steam electric generating stations. As such, the ELG Rule establishes the best available technology economically achievable ("BAT") requirements for existing facilities. After taking considerable public comment, the ELG Rule became effective on January 4, 2016. The ELG Rule requires that all permits issued in the first permitting cycle following the third anniversary of the effective date of the ELG Rule should include a compliance schedule established by the Division of Water. However, in a letter dated April 12, 2017, the EPA announced it was reconsidering portions of the ELG Rule that applied to bottom ash transport water and FGD wastewater. On September 18, 2017, the EPA published a new Final Postponement Rule that postponed the earliest compliance deadline for these two ELG waste streams but otherwise maintained the ELG standards during the reconsideration. Although, EPA is reconsidering the rule for bottom ash transport water and FGD wastewater,[6] as it stands today, the

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effective date of the CCR Rule; CCR materials generated at facilities that are not part of an electric utility or independent power producer, such as manufacturing facilities, universities and hospitals; CCR materials generated primarily from the combustion of fuels other than coal; CCR that is beneficially reused; CCR placement at active or abandoned underground or surface coal mines; or CCR material that is placed at municipal solid waste landfills.

new requirements will apply for bottom ash transport water and FGD wastewater "as soon as possible beginning November 1, 2020, but no later than December 31, 2023."

3. Additional Environmental Obligations

19. While the CCR Rule and the ELG Rule are the primary factors behind EKPC's request to amend its existing Compliance Plan, there are other environmental authorities which also make the proposed Compliance Plan amendments a prudent course of action for EKPC. For instance, separate and apart from EKPC's obligations under the ELG Rule as implemented during the current KPDES permit renewal cycle, EKPC anticipates that the KPDES permitting process itself will include enhanced metals limitations. Moreover, EKPC's existing KPDES is implicated in a planned expansion of its landfill pursuant to the CCR Rule and 401 KAR Chapter 46. Increased location restrictions, liner requirements, leachate collection requirements, groundwater monitoring and other technical requirements are anticipated to apply. Likewise, EKPC is subject to the authority of the Ohio River Valley Water Sanitation Commission ("ORSANCO"), which is proposing its own onerous permitting limitations on discharges into the Ohio River. Thus, even if the CCR Rule or the ELG Rule were to be suspended, revoked or not enforced, other legal authorities will still likely require EKPC and other coal-generating electric utilities in the state to move forward with most, if not all, of the proposed Compliance Plan amendments.

4. CCR Rule/ELG Rule Compliance Options

20. EKPC considered several options for remaining compliant with the requirements of the CCR Rule and ELG Rule. Importantly, due to the nature of the CCR Rule and ELG Rule, every option considered by EKPC included significant modifications to the existing ash pond. Several of these options were disqualified from further consideration following an initial screening

analysis due either to excessive cost, questionable viability or both. The options considered by EKPC are as follows:

a. The option ultimately selected by EKPC's management and approved by its Board of Directors is to comply with the CCR Rule and ELG Rule by making modifications to the existing Spurlock Station so as to preserve the long-term usefulness of, and significant investment in, the four electric generating units that have been, and continue to be, the mainstay of the EKPC generation fleet. The details of this compliance option are set forth in greater detail below and in the testimony that is attached to this Application. The estimated cost of compliance with the CCR Rule and ELG Rule at the Spurlock Station is $262.4 million (the "CCR/ELG Project"). The compliance option also avoids significant stranded costs that would have had to be recovered from EKPC's sixteen owner-members. All other options that were considered would have triggered significant or greater stranded asset costs.

b. EKPC also considered converting the fuel source for Spurlock 1 and Spurlock 2 from coal to natural gas. The option was attractive in that it would allow EKPC to avoid much of the cost of complying with the CCR Rule and ELG Rule. However, any cost savings was more than offset by the: (i) cost of conversion of the units from coal to natural gas; (ii) need to build a dedicated natural gas transmission line to connect the Spurlock Station to an interstate natural gas pipeline (including the challenges of acquiring easements for same); (iii) costs associated with procuring power during the period when permitting and reconstruction of the units would be occurring; (iv) creation of stranded assets requiring rate recovery; (v) risk of concentrating EKPC's generation fleet so heavily in the natural gas sector of the industry; (vi) loss of fuel storage capacity that is critical to the Company during extreme weather events such as the recent Polar Vortex; and (vii) the use of a simple cycle unit would result in higher energy costs,

which would translate into an increased cost of power to owner-members. Moreover, without additional capital investment to alternatively produce steam, the conversion of Spurlock 1 and Spurlock 2 to natural gas would have a negative impact upon the operations of International Paper as a steam customer. The estimated cost of this option, excluding stranded costs and interim replacement power, was approximately $306.6 million.

c. EKPC also considered retiring Spurlock 1 and Spurlock 2 and constructing a new 600 MW combined cycle natural gas unit at its Smith Station and purchasing 200 MW of power from the wholesale market through a bilateral power purchase agreement. The cost of constructing a new combined cycle generation unit was cost prohibitive compared to the compliance alternative and would have left EKPC with certain stranded costs at the Spurlock Station. And, like the gas conversion option, continued steam delivery to International Paper would require additional investment. Moreover, entering into a long-term power purchase agreement creates price risk for EKPC as the forward market price for capacity and energy is less transparent as one moves further out from the time of execution of such an agreement. The option was also inconsistent with the Commission's prior admonition that EKPC and other regulated utilities should own sufficient generation resources to satisfy its ordinary and customary load.[6] EKPC estimated that the cost of moving forward with the option to retire Spurlock 1 and Spurlock 2 and replacing that capacity and energy with a combined cycle unit and market purchase was approximately $560 million, excluding market purchases and stranded costs.

[6] *See In the Matter of the Examination of the Application of the Fuel Adjustment Clause of East Kentucky Power Cooperative, Inc. From November 1, 2013 through April 30, 2014*, Order, Case No. 2014-00226 (Ky. P.S.C. Jan. 30, 2015) ("The Commission believes it is important to maintain the limitation for recovery through the FAC of 'non-economy energy purchases' in order to incentivize utilities to keep outages to a minimum *and to have sufficient capacity to meet load.*") (emphasis added) (rehearing denied July 10, 2015).

d. A related option considered by EKPC was to retire both Spurlock 1 and Spurlock 2 and replace both units with long-term market purchase of 800 MW of capacity and energy.[7] For the reasons set forth above, this option was deemed less favorable than the construction of a combined cycle unit and 200 MW market purchase. The estimated cost of power for this option would be the "PJM market price" plus a premium for capacity and energy at various transaction dates. The cost for ash pond modifications would still be incurred, however, the total cost of this option is difficult to estimate and as stated, is controlled by market risk that is higher with long-term purchases. In addition, this option would eliminate a key thesis and strategic advantage of EKPC's PJM membership. Because EKPC is a winter peaking system and PJM is a summer peaking system, EKPC has the ability to participate in the RPM market to its economic advantage.

e. EKPC also considered an option wherein it would demolish the wet FGD scrubbers serving Spurlock 1 and Spurlock 2 and replace them with a new dry scrubber system. EKPC estimated that the capital cost of compliance with a new dry scrubber system would be $535 million, not including the cost of recovering certain stranded assets that would be associated with the demolished wet scrubber system, the required ash pond costs, or purchases of up to 800MW in required interim capacity and energy.

f. In accordance with the Commission's directive in Administrative Case 2008-00408,[8] EKPC also considered whether energy efficiency offered a viable alternative to

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[7] Some documents prepared by EKPC or its consultants have included a purchase of "up to 810 MW". For purposes of analyzing the value afforded by this option, the distinction is immaterial. For purposes of consistency and clarity, EKPC will use 800 MW throughout this Application and the testimony when discussing this option.

[8] *See In the Matter of Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007*, Rehearing Order, Case No. 2008-00408, p. 10 (Ky. P.S.C. July 24, 2012) ("Each electric utility shall integrate energy efficiency resources into its plans and shall adopt policies establishing cost-effective energy efficiency resources with equal priority as other resource options. In each integrated resource plan, certificate case, and rate case, the subject electric utility shall fully explain its consideration of cost-effective energy efficiency resources as

compliance with the CCR Rule and ELG Rule. While EKPC is committed to cost-effective energy efficiency and other demand response programs, it is unrealistic to believe EKPC could replace 800 MW of existing capacity (or a significant portion thereof) with energy efficiency and demand response investments between now and the upcoming compliance deadlines.

21. EKPC's Board and managers have invested considerable time and attention to the scope and depth of the CCR Rule and ELG Rule and its impact upon the company. As part of that due diligence, EKPC obtained a report from Navigant Consulting that helped determine whether proceeding with the CCR/ELG Project was the best option over the long term by assessing whether the continued use of Spurlock 1 and Spurlock 2 as coal-fired generation resources offered value to EKPC and its owner-members.[9] The report concluded that Spurlock 1 and Spurlock 2 continue to offer substantial value for EKPC over the long-term as coal-fired units, particularly in the base scenario and scenarios where fuel prices were greater than the base scenario or load growth was less than expected. Following a deliberative process covering several years and allowing for the maximum possible time to understand the rules and to assess the likelihood of them actually being implemented, the EKPC Board directed management to pursue the Compliance Plan as it presented the reasonable, least-cost option.[10] EKPC has given the required notice of intent as to the filing of this Application and has provided the requisite notice to its owner-members as well.[11]

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defined in the Commission's IRP regulation (807 KAR 5058)."). During the Commission's consideration of EKPC's proposal to include Cooper Station Unit 1 in the air quality control system being construction for Cooper Station Unit 2, the Sierra Club intervened and suggested that EKPC could develop replacement capacity primarily through energy efficiency and demand response investments. The Commission rejected this outlandish notion at that time. Given that the potential retirement of Spurlock 1 or Spurlock 2 would be an even more significant loss of capacity, the Sierra Club's suggestions would make even less sense in this situation.

[9] A copy of Navigant Consulting's Spurlock Scenario Analysis Report is attached hereto as Attachment RL-2 to Exhibit L, the Direct Testimony of Ralph Luciani.

[10] A copy of the Board's September 12, 2017 Resolution is attached hereto and incorporated herein as Exhibit B.

[11] A copy of the Notice of Intent is attached hereto and incorporated herein as Exhibit E. A copy of the Notice given to EKPC's owner-members is attached hereto and incorporated herein as Exhibit F.

III. Description of the Spurlock CCR/ELG Project

22. EKPC engaged the engineering firm Burns and McDonnell Engineering Company, Inc. ("Burns and McDonnell") to prepare a Scoping Report that would be useful to further develop the CCR/ELG Project. The Scoping Report issued by Burns and McDonnell involves six major project components,[12] which are as follows:

a. Bottom Ash Handling System – EKPC will convert the existing bottom ash system from a wet sluicing system to a new dry ash system. In addition, a separate pyrites handling system with dewatering bins and settling basin will be installed.

b. Wastewater Treatment System – EKPC will construct a new wastewater treatment plant to process FGD wastewater and blowdown from Spurlock 1 and Spurlock 2. The wastewater treatment plant will provide a physical/chemical treatment of the FGD blowdown and utilize an Optimized Mechanical Vapor Compression ("MVC") System that incorporates falling film evaporators ("FFE") designed for a flow of 240 gallons per minute ("GPM"). To accommodate excess wastewater flow, an additional 160 GPM of FGD wastewater will be consumed by ash mixing in the existing fly ash silos and by dry scrubber evaporation in the Gilbert Unit and Spurlock 4.

c. Fly Ash Handling System – EKPC will construct a new fly ash storage silo and replace the existing transfer building with equipment to handle fly ash from Spurlock 1 and Spurlock 2. This addition is necessary to assure redundancy for ash removal since sluicing to the ash pond will no longer be available.

d. Balance of Plant Systems – EKPC will install new piping, controls, instrumentation, electrical and mechanical equipment within the Project that are necessary to

[12] A copy of the Burns and McDonnell Scoping Report is attached hereto as Attachment SY-2 to Exhibit K, the Direct Testimony of Sam Yoder.

operate these new systems. As part of this Project component, EKPC will construct two new Power Control Module ("PCM") buildings as well as new 13,800 / 480 V station service transformers. The power feed from the switchyard to the MVC system will be made via new 138 kV / 13.8kV low resistance grounded transformers.

e. Ash Pond Closure – EKPC's strategy is to identify, plan, permit and provide enough landfill space to meet end of life needs for the plant facility. As part of the ash pond closure, EKPC estimates that it will remove approximately 1.75 million cubic yards of CCR material from the existing sixty-seven (67) acre surface impoundment, which coincidentally represents approximately one year's ash production for normal operation at Spurlock Station. CCR materials will be removed and placed in the Spurlock Station landfill. EKPC is in the process of permitting additional space adjacent to the existing landfill. Permitting this additional space will provide enough waste boundary for the Spurlock Station to reach its end-of-life. To close the ash pond, CCR materials will be removed, the existing dams will be left in place, new topsoil and seed will be applied over disturbed areas, and a new water mass balance pond will be established within the footprint of the original pond. Upon the completion of the CCR removal, the Spurlock ash pond impoundment will be considered "clean-closed by removal."

f. Water Mass Balance Pond Chemical Treatment System – EKPC will repurpose seventeen (17) acres of the existing surface impoundment as a new Water Mass Balance ("WMB") Pond. The WMB Pond will aid in settling constituents from various plant process flows including the coal pile runoff stream, neutralization basins, clarifiers and air heater wash wastewater, non-chemical metal cleaning wastes and storm water to meet proposed discharge requirements. The WMB Pond will include a chemical treatment system to regulate pond pH, alkalinity, and total suspended solids and assist in the removal of iron and other chemical

constituents ahead of discharging into the Ohio River pursuant to EKPC's KPDES permit application.

23. The schedule for implementing the CCR/ELG Project is designed to allow EKPC to timely comply with the CCR Rule and ELG Rule while taking into account several factors, including: the long lead times associated with equipment orders for critical CCR/ELG Project components; the need to coordinate construction activities with planned unit outages; and the time required to secure necessary regulatory approvals. Based upon the current schedule, construction will commence in January 2019 and be completed in November 2024.

24. In addition to approval from the Commission, the CCR/ELG Project will require EKPC to seek approvals, modifications to several existing permits or new permits from the following agencies: the United States Army Corps of Engineers; United States Fish and Wildlife Service; EPA; United States Department of Agriculture's Rural Utilities Service; Kentucky Division of Air Quality; Kentucky Division of Water ("KDOW") ; Kentucky Division of Waste Management; Kentucky Heritage Council; ORSANCO; and the Mason County Joint Planning Commission. EKPC has begun the process of seeking all necessary permits and approvals.

25. EKPC will finance the CCR/ELG Project through a combination of short-term financing available through its existing Credit Facility and the issuance of new long-term debt through its existing Trust Indenture.[13] The total cost of the CCR/ELG Project will be paid for over the course of the seven years of development, planning and construction. Burns and McDonnell estimates that EKPC will spend the following approximate amounts during this time: $40 million

[13] *See In the Matter of the Application of East Kentucky Power Cooperative, Inc. for Approval to Obtain a Trust Indenture*, Order, Case No. 2012-00249 (Ky. P.S.C., Aug. 9, 2012); *In the Matter of the Application of East Kentucky Power Cooperative, Inc. for Approval of the Issuance of up to $200,000,000 of Secured Private Placement Debt, for the Amendment and Extension of an Unsecured Revolving Credit Agreement in an Amount up to $500,000,000, and for the use of Interest-Rate Management Instruments*, Order, Case No. 2013-00306 (Ky. P.S.C. Sept. 27, 2013).

through the end of 2018; $96 million in 2019; $70 million in 2020; $18 million in 2021; $12 million in 2022; $20 million in 2023; and $6 million in 2024.

26. EKPC intends to use a multiple contract approach with adjustment unit pricing to develop and construct the CCR/ELG Project. This approach allows EKPC to work with Burns and McDonnell to create and procure the necessary construction and major equipment contracts. The approach involves the use of multiple equipment and material contracts and multiple construction contracts and will allow EKPC to minimize procurement costs by providing for competitive bidding to reduce contractor markups.

27. In summary, the CCR/ELG Project will provide many benefits to EKPC, including, without limitation, the following:

a. Allowing EKPC to retain over 800 MW of existing, reliable, low-cost baseload generation capacity to supply the capacity and energy needs of its owner-members;

b. Limiting the amount of stranded assets that would be required to be paid for by EKPC's owner-members through rates by enabling existing utility plant to remain used and useful throughout its design life;

c. Retaining a significant source of coal-fired generation to support the coal industry;

d. Complying with the CCR Rule and ELG Rule in a reasonable, least-cost manner;

e. Positioning EKPC to continue to reap benefits from its ability to bid capacity and energy into the PJM wholesale markets;

f. Furthering EKPC's efforts to provide reliable, safe, adequate and reasonable service to its owner-members at rates that are fair, just and reasonable;

g. Removing a significant coal ash impoundment from a location that is adjacent to one of the largest rivers in North America and within the 100-year flood plain;

h. Preserving EKPC's ability to comply with future environmental regulations that may be imposed by the EPA, KDOW, ORSANCO or other authority;

i. Providing no interruption or increased capital costs to International Paper's operations as one of the largest employers in Mason County;

j. Assuring that EKPC continues to have adequate generation assets to satisfy load requirements; and

k. Maintaining a reliable coal-fired electric generation fleet.

IV. Requests for CPCN and Amendment of Environmental Compliance Plan

28. It is well established that the Commission only possesses such powers as granted by the General Assembly.[14] However, the scope of the powers expressly granted by the General Assembly to the Commission to regulate the "rates" and "service" of utilities is plenary in nature, unless otherwise expressly limited or expressed by statute.[15] In the context of a request for issuance of a CPCN, the Commission's authority under KRS 278.020(1) remains very broad. The General Assembly has, however, chosen to limit the Commission's authority to prohibit or delay recovery of certain costs arising from compliance with environmental laws and regulations by enacting KRS 278.183, the environmental surcharge statute.

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[14] *See Boone Co. Water and Sewer Dist. v. Public Service Comm'n,* Ky., 949 S.W.2d 588, 591 (1997); *Simpson Co. Water Dist. v. City of Franklin*, 872 S.W.2d 460, 462 (Ky. 1994); *Com., ex rel. Stumbo v. Kentucky Public Service Comm'n*, 243 S.W.3d 374, 378 (Ky. App. 2007); *Cincinnati Bell Tel. Co. v. Kentucky Public Service Comm'n,* 223 S.W.3d 829, 836 (Ky. App. 2007); *Public Service Comm'n v. Jackson Co. Rural Elec. Co-op., Inc.,* 50 S.W.3d 764, 767 (Ky. App. 2000).

[15] *See* KRS 278.040(2); *Kentucky Public Service Comm'n v. Commonwealth of Kentucky, ex rel. Conway*, 324 S.W.3d 373, 383 (Ky. 2010); *Southern Bell Tel. & Tel. Co. v. City of Louisville*, 265 Ky. 286, 96 S.W.2d 695, 697 (Ky. 1936).

A. Certificate of Public Convenience and Necessity

1. KRS 278.020(1) Requires Analysis of "Need" and "Wasteful Duplication"

29. Before undertaking a construction project that is not in the ordinary course of business, a utility must obtain a CPCN from the Commission under the authority of KRS 278.020(1), which states in relevant part:

> No person, partnership, public or private corporation, or combination thereof shall…begin the construction of any plant, equipment, property, or facility for furnishing to the public any of the services enumerated in KRS 278.010…until that person has obtained from the Public Service Commission a certificate that public convenience and necessity require the service or construction.… The commission, when considering an application for a certificate to construct a base load electric generating facility, may consider the policy of the General Assembly to foster and encourage use of Kentucky coal by electric utilities serving the Commonwealth.

30. The statute is silent, however, with regard to the criteria which the Commission should apply to any such request from a utility. Accordingly, case law construing KRS 278.020(1) provides the appropriate standard for evaluating EKPC's request for a CPCN in this proceeding. The leading authority on CPCNs is *Kentucky Utilities Co. v. Public Service Comm'n*, which articulates a two-part test for demonstrating entitlement to a CPCN: (1) need; and (2) absence of wasteful duplication. *Kentucky Utilities Co.* provides significant guidance as to what further considerations should be taken into account when evaluating a request for a CPCN under these two criteria.

31. As to "need," Kentucky's highest Court wrote:

> We think it is obvious that the establishment of convenience and necessity for a new service system or a new service facility requires first a showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed and operated. Second, the inadequacy must be due

> either to a substantial deficiency of service facilities, beyond what could be supplied by normal improvements in the ordinary course of business; or to indifference, poor management or disregard of the rights of consumers, persisting over such a period of time as to establish an inability or unwillingness to render adequate service.[16]

32. The need for all the CCR/ELG Project described herein is demonstrated by the fact that, without it, EKPC would be unable to continue to operate the Spurlock Station in a manner consistent and compliant with federal and state environmental mandates.

33. With regard to what constitutes "wasteful duplication", the Court opined:

> [W]e think that 'duplication' also embraces the meaning of an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties, such as right of ways, poles and wires. An inadequacy of service might be such as to require construction of an additional service facility to supplement an inadequate existing facility, yet the public interest would be better served by substituting one large facility, adequate to serve all the consumers, in place of the inadequate existing facility, rather than constructing a new small facility to supplement the existing small facility. A supplementary small facility might be constructed that would not create duplication from the standpoint of an excess of capacity, but would result in duplication from the standpoint of an excessive investment in relation to efficiency and a multiplicity of physical properties.[17]

34. In evaluating the "wasteful duplication" aspect of CPCN analysis, the Court further instructed, "[w]e are of the opinion that the Public Service Commission should have considered the question of duplication from the standpoints of excessive investment in relation to efficiency, and an unnecessary multiplicity of physical properties."[18] While the avoidance of "wasteful duplication" is a primary consideration for evaluating a request for a CPCN, *Kentucky Utilities Co.* makes clear that the Commission must not focus exclusively upon the cost of a proposal alone.

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[16] *Kentucky Utilities Co.*, at 890.

[17] *Id.*, at 891.

[18] *Id.*

The Commission must also look at an application for a CPCN in relation to the service to be provided by the utility:

> [W]e do not mean to say that *cost* (as embraced in the question of duplication) is to be given more consideration than the need for *service*. If, from the past record of an existing utility, it should appear that the utility cannot or will not provide adequate service, we think it might be proper to permit some duplication to take place, and some economic loss to be suffered so long as the duplication and resulting loss be not greatly out of proportion to the need for service.[19]

35. In other words, the complete absence of "wasteful duplication" need not be shown to an absolute certainty, "it is sufficient that there is a reasonable basis of anticipation" that the "consumer market in the immediately foreseeable future will be sufficiently large to make it economically feasible for a proposed system or facility to be constructed...."[20] As recently as 2012, the Commission affirmed this point:

> To demonstrate that a proposed facility does not result in wasteful duplication, we have held that the applicant must demonstrate that a thorough review of all alternatives has been performed. Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication. All relevant factors must be balanced.[21]

36. EKPC satisfies the "wasteful duplication" component of the CPCN analysis by virtue of the considerable due diligence that it has undertaken as part of its screening analysis of the various options available and its detailed consideration of the various components that must be

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[19] *Id.*, at 892 (emphasis in original).

[20] *Kentucky Utilities Co. v. Public Service Commission*, 59 P.U.R.3d 219, 390 S.W.2d 168, 172 (Ky. 1965).

[21] *In re the Application of Big Rivers Electric Corporation for Approval of its 2012 Environmental Compliance Plan*, Case No. 2012-00063, Final Order, pp. 14-15 (Ky. P.S.C. Oct. 1, 2012) (citations omitted).

incorporated into the CCR/ELG Project. The proposed Compliance Plan amendment presents the reasonable, least cost option for continued operation of the Spurlock Station.

2. Filing Requirements

37. Pursuant to 807 KAR 5:001, Section 15(2)(a), the facts relied upon to show that the proposed construction or extension is or will be required by public convenience or necessity are set forth in paragraphs five (5) through twenty-seven (27) herein.

38. Pursuant to 807 KAR 5:001, Section 15(2)(b), EKPC is providing copies of all necessary environmental permits that have been obtained for the proposed construction or extension as Attachment JP-1 to Exhibit H, the Direct Testimony of Jerry Purvis. Mr. Purvis' testimony also provides a list of all environmental permits that have been requested or will be requested by EKPC.

39. Pursuant to 807 KAR 5:001, Section 15(2)(c), a full description of the proposed location, route, or routes of the proposed construction or extension is attached as Exhibit A hereto and incorporated herein. A description of the manner of construction is set forth in paragraphs twenty-two (22) through twenty-six (26) herein as well as the testimony of Mr. Johnson and Mr. Yoder. There are no public utilities, corporations or persons with whom the proposed construction or extension is likely to compete.

40. Pursuant to 807 KAR 5:001, Section 15(2)(d), EKPC is attaching, and incorporating herein as Exhibits C and D, one (1) copy in portable document format on electronic storage medium and two (2) copies in paper medium of the following information: maps to suitable scale showing the location or route of the proposed construction or extension, as well as the location to scale of like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of the other facilities; and plans and specifications and

drawings of the proposed plant, equipment, and facilities. The Exhibits are the subject of a motion for confidential treatment and a motion for a filing deviation that are filed contemporaneously herewith.

41. Pursuant to 807 KAR 5:001, Section 15(2)(e), a detailed description of the manner in which EKPC intends to finance the proposed construction or extension is set forth in paragraph forty-nine (49) herein and the testimony of Mr. Stachnik.

42. Pursuant to 807 KAR 5:001, Section 15(2)(f), EKPC is providing an estimated annual cost of operation after the proposed facilities are placed into service in paragraph forty-nine (49) herein.

B. Request for Approval of an Environmental Compliance Plan Amendment

43. When a utility applies for a CPCN for the construction of a facility that is necessary to comply with an environmental mandate, KRS 278.183 is also implicated. The environmental surcharge statute was enacted "to promote the use of high sulfur Kentucky coal by permitting utilities to surcharge their customers for the cost of a scrubber which is part of a power plant that cleans high sulfur coal in order to meet the acid rain provisions of the Federal Clean Air Act amendments of 1990."[22] Section 1 of the statute contains the guarantee of cost recovery for such environmental compliance costs:

> Notwithstanding any other provision of this chapter, effective January 1, 1993, a utility shall be entitled to the current recovery of its costs of complying with the Federal Clean Air Act as amended and those federal, state, or local environmental requirements which apply to coal combustion wastes and by-products from facilities utilized for production of energy from coal in accordance with the utility's compliance plan as designated in subsection (2) of this section. These costs shall include a reasonable return on construction and other capital expenditures and reasonable operating expenses for any plant, equipment, property, facility, or

[22] *Kentucky Indus. Utility Customers, Inc. v. Kentucky Utilities Co.*, 983 S.W.2d 493, 496 (Ky. 1998).

> other action to be used to comply with applicable environmental requirements set forth in this section. Operating expenses include all costs of operating and maintaining environmental facilities, income taxes, property taxes, other applicable taxes, and depreciation expenses as these expenses relate to compliance with the environmental requirements set forth in this section.[23]

44. In order to obtain rate relief under the environmental surcharge statute, a utility must "submit to the commission a plan, including any application required by KRS 278.020(1), for complying with the applicable environmental requirements set forth in [KRS 278.183(1)]." Following that:

> ...[T]he commission shall conduct a hearing to: (a) Consider and approve the plan and rate surcharge if the commission finds the plan and rate surcharge reasonable and cost-effective for compliance with the applicable environmental requirements set forth in subsection (1) of this section; (b) Establish a reasonable return on compliance-related capital expenditures; and (c) Approve the application of the surcharge.[24]

45. The Kentucky Supreme Court characterized KRS 278.183 as "a new right" that "did not exist before the enactment of the surcharge."[25] Thus, the Kentucky General Assembly has chosen to encourage the use of coal by enacting a surcharge mechanism that guarantees a utility the ability to recover costs associated with compliance with environmental mandates. The Commission has commented upon the prescriptive nature of the KRS 278.183 by observing that it "must consider the plan and the proposed rate surcharge, and approve them if [the Commission] finds the plan and rate surcharge to be reasonable and cost effective."[26] The environmental

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[23] KRS 278.183(1).

[24] KRS 278.183(2).

[25] *Kentucky Indus. Utility Customers, Inc.*, at 500.

[26] *In re the Application of Big Rivers Electric Corporation for Approval of its 2012 Environmental Compliance Plan*, Case No. 2012-00063, Final Order, p. 16 (Ky. P.S.C. Oct. 1, 2012).

surcharge statute, therefore, relates to and is an important adjunct to the traditional CPCN analysis required by KRS 278.020(1).

46. EKPC implemented its first Compliance Plan following Commission approval in 2005.[27] EKPC has subsequently amended its Compliance Plan on four (4) occasions.[28]

47. As part of the CCR/ELG Project, EKPC must retire and remove certain equipment that is not yet fully depreciated and the costs of which are currently recovered in EKPC's existing base rates or environmental surcharge. EKPC estimates that the undepreciated value of these assets by the end of 2020 to be $3,117,497. EKPC has determined that of this total, $2,141,127 is related to assets currently recovered through base rates while the balance of $976,370 is related to assets currently recovered through the environmental surcharge.

48. The completion of the CCR/ELG Project within the amended Compliance Plan will also serve to settle (eliminate) the ARO associated with the Spurlock Station's ash pond impoundment. The current cost of the ARO is estimated at $41.8 million. Under the accounting rules applicable to EKPC, the precise amount of the ARO will be determined as EKPC expends dollars toward the ash pond closure. These expenditures will also reduce the value of the ARO on a dollar for dollar basis until such time as the closure is complete and the ARO is eliminated

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[27] *See In the Matter of Application of East Kentucky Power Cooperative, Inc. for Approval of an Environmental Compliance Plan and Authority to Implement an Environmental Surcharge*, Order, Case No. 2004-00321, (Ky. P.S.C., Mar. 17, 2005).

[28] *See In the Matter of the Application of East Kentucky Power Cooperative, Inc. for Approval of an Amendment to Its Environmental Compliance Plan and Environmental Surcharge*, Order, Case No. 2008-00115, (Ky. P.S.C., Sep. 29, 2008); *In the Matter of the Application of East Kentucky Power Cooperative, Inc. for Approval of an Amendment to Its Environmental Compliance Plan and Environmental Surcharge*, Order, Case No. 2010-00083, (Ky. P.S.C., Sep. 24, 2010); *In the Matter of the Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for Alteration of Certain Equipment at the Cooper Station and Approval of a Compliance Plan Amendment for Environmental Surcharge Cost Recovery*, Order, Case No. 2013-00259, (Ky. P.S.C., Feb. 20, 2014); *In the Matter of the Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for construction of an Ash Landfill at J.K. Smith Station, the Removal of Impounded Ash from William C. Dale Station for Transport to J.K. Smith and Approval of a Compliance Plan Amendment for Environmental Surcharge Recovery*, Order, Case No. 2014-00252 (Ky. P.S.C., Mar. 6, 2015).

entirely, with any gain or loss transferred to the regulatory asset. Because the regulatory asset previously authorized by the Commission in Case No. 2014-00432 is directly tied to the ARO,[29] EKPC will also be able to diminish and eventually eliminate the regulatory asset from its balance sheet through rate recovery under the environmental surcharge.

49. EKPC is seeking approval to recover the costs associated with the CCR/ELG Project included in its amended Compliance Plan as set forth herein. The total cost of the CCR/ELG Project, including the ash pond closure, is $262.4 million. In addition, EKPC estimates that the incremental annual operations and maintenance expense associated with the CCR/ELG Project following its completion will be approximately $4.2 million. EKPC intends to finance the construction of the CCR/ELG Project through its existing credit facility before transitioning it to a long-term debt placement available through its Trust Indenture.

50. Under KRS 278.183(2), EKPC is entitled to earn a return on its investment. The original (and still used) methodology for determining an appropriate return is the product of the weighted average debt cost of the debt issuances directly related to the projects in EKPC's Compliance Plan, multiplied by a Times Interest Earned Ratio ("TIER") factor.[30] EKPC has updated its weighted average debt cost at each six-month review of its Compliance Plan and states that its current weighted average debt cost is 4.05%. Moreover, the Commission has consistently

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[29] *See In the Matter of An Application of East Kentucky Power Cooperative, Inc. for an Order Approving the Establishment of Regulatory Assets for the Depreciation and Accretion Expenses Associated with Asset Retirement Obligations*, Orders, Case No. 2014-00432, (Ky. P.S.C., Mar. 6, 2015 and Jul. 21, 2015).

[30] *See In the Matter of the Application of East Kentucky Power Cooperative, Inc. for Approval of an Environmental Compliance Plan and Authority to Implement an Environmental Surcharge*, Order, Case No. 2004-00321 (Ky. P.S.C. Mar. 17, 2005).

applied a 1.50 TIER factor.[31] EKPC is requesting the Commission use its updated weighted average debt cost of 4.05% and a 1.50 TIER factor to arrive at an overall rate of return of 6.075%.[32]

51. Based upon the foregoing, EKPC estimates that the annual environmental surcharge impact of its amended Compliance Plan to a residential customer using 1,150 kWh of electricity each month will be as follows:

Year Ending	Percentage Wholesale Increase	Percentage Retail Increase	Estimated Increase in Average Residential Monthly Bill
2018	0.29%	0.21%	$0.17
2019	1.03%	0.74%	$0.59
2020	2.26%	1.63%	$1.29
2021	3.71%	2.67%	$2.12
2022	4.35%	3.13%	$2.48
2023	4.63%	3.33%	$2.64
2024	3.66%	2.64%	$2.09
2025	2.90%	2.09%	$1.66

V. Overview of Testimony

52. EKPC is providing written testimony to support its Application from the following individuals:

[31] *See e.g. In the Matter of an Examination by the Public Service Commission of the Environmental Surcharge Mechanism of East Kentucky Power Cooperative, Inc. for the Six-Month Billing Period Ending December 31, 2010; and the Pass-Through Mechanism for Its Sixteen Member Distribution Cooperatives*, Order, Case No. 2011-00032 (Ky. P.S.C. Aug. 2, 2011); *In the Matter of an Examination by the Public Service Commission of the Environmental Surcharge Mechanism of East Kentucky Power Cooperative, Inc. for the Six-Month Billing Period Ending June 30, 2016 and the Pass Through Mechanism for its Sixteen Member Distribution Cooperatives*, Order, Case No. 2016-335 (Ky. P.S.C. May 11, 2017).

[32] *See In the Matter of An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of East Kentucky Power Cooperative, Inc. for the Two-Year Billing Period Ending June 30, 2017, and the Pass-Through Mechanism for Its Sixteen Member Distribution Cooperatives*, Case No. 2017-00326. In its response to Request 5 of the Commission Staff's First Request for Information, EKPC proposed a weighted average cost of debt of 4.05% based on the debt cost for each debt issuance directly related to the projects in the environmental compliance plan as of May 31, 2017.

a. Mr. Don Mosier, P.E., Executive Vice President and Chief Operating Officer, will offer testimony supporting EKPC's corporate profile, strategic objectives and the due diligence that has gone into the development of this proposal.

b. Mr. Jerry Purvis, Vice President of Environmental Affairs, will offer testimony concerning the environmental obligations that EKPC must satisfy. He will also offer detailed testimony as to the purpose, scope and requirements of the CCR Rule, the ELG Rule and other applicable environmental authorities. Mr. Purvis will be sponsoring one exhibit (JP-1), which is a matrix of environmental permits already received, or applications for environmental permits that have been submitted, that are related to the CCR/ELG Project.

c. Mr. Craig Johnson, P.E., Senior Vice President of Power Production, will offer testimony concerning the other CCR Rule and ELG Rule compliance options that EKPC considered. He will also provide a detailed description of the CCR/ELG Project included in the proposed Compliance Plan amendments, including the cost estimate, project timeline and contracting approach.

d. Ms. Robin Hayes, Director of Financial Planning and Analysis, will provide testimony concerning an economic analysis of the other CCR Rule and ELG Rule compliance options considered by EKPC. Ms. Hayes will be sponsoring the following exhibit has part of her testimony: an economic analysis of alternative compliance options considered by EKPC (RH-1), which is subject to a motion for confidential treatment filed herewith.

e. Mr. Sam Yoder, P.E., Energy Division Project Manager with Burns and McDonnell, will provide testimony concerning the details of the CCR/ELG Project. Mr. Yoder will be sponsoring the following exhibits as part of his testimony: a *curriculum vitae* (SY-1) and the Burns and McDonnell Scoping Report (SY-2).

f. Mr. Ralph Luciani, a Director with Navigant Consulting, will provide testimony regarding the economic value of the Spurlock Station. Mr. Luciani will be sponsoring the following exhibits as part of his testimony: a *curriculum vitae* (RL-1) and the Spurlock Scenario Analysis Report (RL-2).

g. Mr. Thomas Stachnik, Vice President of Finance and Treasurer, will provide testimony concerning EKPC's plans to finance the CCR/ELG Project as well as the calculation of EKPC's weighted average cost of debt associated with debt issuances relating to its Compliance Plan as of June 30, 2017. He will also provide testimony concerning EKPC's requested authorized return. Mr. Stachnik will be sponsoring the following exhibit as part of his testimony: weighted average cost of debt calculation (TS-1).

h. Mr. Isaac Scott, Manager of Pricing, will provide testimony concerning the cost and rate impact of the proposed Compliance Plan amendment. He will also discuss the proposed revisions to the environmental reporting forms, the treatment of the existing Spurlock Station ash pond ARO and associated regulatory asset and the status of various plant equipment that will be retired prior to being fully depreciated. Mr. Scott will be sponsoring the following exhibits as part of his testimony: Schedule of Current Environmental Compliance Plan and the Project Addition (ISS-1); Sample Copy of the Monthly Environmental Surcharge Reporting Formats which Reflect Inclusion of the Projects (ISS-2); Schedule Showing the Base Environmental Surcharge Factor Determination Reflecting Spurlock Station Utility Plant Retirements/Replacements (ISS-3); Asset Retirement Obligation Settlement (ISS-4); Estimate of Revenue Increase and Estimated Bill Impact (ISS-5); and Revision to Rate ES-Environmental Surcharge tariff (ISS-6).

VI. Conclusion

53. Recent changes in federal environmental regulations and other environmental authorities require EKPC to make significant modifications to its existing Compliance Plan. Accordingly, EKPC respectfully requests that the Commission allow EKPC to amend its Compliance Plan to include the aforementioned CCR/ELG Project and to recover the costs of same via its environmental surcharge. For the CCR/ELG Project, EKPC requests the Commission to issue a CPCN.

WHEREFORE, on the basis of the foregoing, EKPC respectfully prays the Commission to:

1) Approve the proposed amendment of EKPC's Environmental Compliance Plan;
2) Authorize recovery of the costs associated with said amendment through EKPC's existing environmental surcharge;
3) Issue a CPCN for the facilities associated with said amendment;
4) Approve settlement of the Spurlock Ash Pond ARO and associated regulatory asset as set forth herein; and
5) Grant all other relief to which EKPC may be entitled.

This 20th day of November, 2017.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF CLARK)

Comes now Don Mosier, Executive Vice President and Chief Operating Officer of East Kentucky Power Cooperative, Inc., and, after being duly sworn, does hereby verify, swear and affirm that the averments set forth in the foregoing Application are true and correct based upon my personal knowledge and belief, formed after reasonable inquiry, as of this 20th day of November, 2017.

Don Mosier, Executive Vice President
and Chief Operating Officer

East Kentucky Power Cooperative, Inc.

The foregoing Verification was verified, sworn to and affirmed before me, the NOTARY PUBLIC by Don Mosier, Executive Vice President and Chief Operating Officer of East Kentucky Power Cooperative, Inc. on this 20th day of November, 2017.

NOTARY PUBLIC

Commission No. 500144

My Commission Expires: 11/30/17

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

Respectfully submitted,

Mark David Goss
David S. Samford
GOSS SAMFORD, PLLC
2365 Harrodsburg Road, Suite B-325
Lexington, KY 40504
mdgoss@gosssamfordlaw.com
david@gosssamfordlaw.com
(859) 368-7740

Counsel for East Kentucky Power Cooperative, Inc.

VII. Exhibits

A. Photographs of Spurlock Station with Identified Facilities/Infrastructure

B. EKPC Board of Directors Resolution dated September 12, 2017

C. Maps (per 807 KAR 5:001, Section 15(2)(d)(1))

D. Plans, Specifications and Drawings (per 807 KAR 5:001, Section 15(2)(d)(2))

E. EKPC's Notice of Intent to File Application

F. EKPC's Notice to Member Cooperatives of Intent to File and Application

G. Testimony of Don Mosier

H. Testimony of Jerry Purvis

JP-1 Environmental Permits Already Received and Applications Submitted

I. Testimony of Craig Johnson

J. Testimony of Robin Hayes

RH-1 Economic Analysis of Alternative Compliance Options Considered by EKPC

K. Testimony of Sam Yoder

SY-1 *Curriculum Vitae*

SY-2 Burns & McDonnell Scoping Report for the CCR/ELG Project

L. Testimony of Ralph Luciani

RL-1 *Curriculum Vitae*

RL-2 Spurlock Scenario Analysis Report

M. Testimony of Thomas Stachnik

TS-1 Weighted Average Cost of Debt Calculation

N. Testimony of Isaac S. Scott

ISS-1 Schedule of Current Environmental Compliance Plan and the Project Addition

ISS-2 Sample Copy of the Monthly Environmental Surcharge Reporting Formats which Reflect Inclusion of the Projects

ISS-3 Schedule Showing the Base Environmental Surcharge Factor Determination Reflecting Spurlock Station and Cooper Station Utility Plant Retirements/Replacements

ISS-4 Asset Retirement Obligation Settlement

ISS-5 Estimate of Revenue Increase and Estimated Bill Impact

ISS-6 Revision to Rate ES-Environmental Surcharge Tariff

REDACTED

EXHIBIT A

PHOTOGRAPHS OF SPURLOCK STATION

Subject to Motion for Confidential Treatment

FROM THE MINUTE BOOK OF PROCEEDINGS OF THE BOARD OF DIRECTORS OF EAST KENTUCKY POWER COOPERATIVE, INC.

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, September 12, 2017, at 9:30 a.m., EDT, the following business was transacted:

Approval to Execute the Full Release of Engineering Design for the CCR and ELG Compliance Project at Spurlock Station and to Submit an Application to the Kentucky Public Service Commission for a Certificate of Public Convenience and Necessity for the Project

After review of the applicable information, a motion to Execute the Full Release of Engineering Design for the CCR and ELG Compliance Project at Spurlock Station and to Submit an Application to the Kentucky Public Service Commission for a Certificate of Public Convenience and Necessity for the Project was made by Tim Eldridge, seconded by Jody Hughes, and passed by the full Board to approve the following:

Whereas, East Kentucky Power Cooperative, Inc. ("EKPC") presently has four coal fired generating units located at the Hugh L. Spurlock Power Station ("Spurlock") in Maysville, Kentucky;

Whereas, on December 19, 2014, the U.S. Environmental Protection Agency ("EPA") issued a Final Rule for coal combustion residuals storage and disposal ("CCR"), and on September 30, 2015, the EPA revised the regulations for the Steam Electric Power Generating category (40CFR Part 423) on Effluent Limit Guidelines ("ELG"), which can significantly impact the permit limits established by the Commonwealth of Kentucky for Spurlock's Kentucky Pollutant Discharge Elimination System permit ("KPDES permit");

Whereas, EKPC's Spurlock Units will require a significant addition and modification of equipment and facilities in order to assure compliance with the new CCR. ELG, and KPDES permit requirements;

Whereas, a Project Scoping Report for CCR and ELG compliance has been developed for the project, that identified the need for the addition of 2 bottom ash handling systems, a replacement of the existing fly ash handling system, added fly ash storage, water treatment systems including clarifiers, belt presses, an optimized mechanical vapor compression system, facilities to transport and allow the consumption of distillate and brine in the ash handling systems, storage and management of storm water flows, the construction of a lined water mass balance pond, and the clean closure of the existing ash pond, plus the infrastructure, electrical and control systems necessary to support and operate the new configuration, at a total Project cost of $262M;

Whereas, after reviewing options presented by Staff, it continues to be prudent and advisable to proceed with the development of a detailed design and to seek the issuance of a Certificate of Public Convenience and Necessity for the Spurlock CCR and ELG Compliance Project;

Whereas, consistent with approval of the EKPC Board of Directors ("Board") on April 11, 2017, an Engineering Services Contract with a Limited Notice to Proceed was awarded to Burns and McDonnell for the project, said contract being terminable at the Board's discretion should termination become desirable at any time in the future, and an application for a Certificate of Public Convenience and Necessity has been developed by Counsel; **now, therefore, be it**

Resolved, the Board hereby authorizes the President and Chief Executive Officer, or his designee, to execute a full release of the RUS 211—Engineering Services Contract with Burns and McDonnell Engineering Company, Inc. for the Spurlock CCR and ELG Compliance Project in the amount of $34.1M plus 10% contingency for a total contract value of $37.5M, and

Resolved, the Board hereby approves the submittal of an application for a Certificate of Public Convenience and Necessity for the Spurlock CCR and ELG Compliance Project, to the Kentucky Public Service Commission, and the preparation of the application with intent to seek rate recovery via the Environmental Surcharge for the costs associated with the project, and

Resolved, the Board hereby authorizes the President and Chief Executive Officer, or his designee to authorize applying for and borrowing funds from RUS and other lenders, and requesting any needed authorization for financing from the KPSC, and the use of general funds for project activities, until such time as RUS or other loan funds become available, and

Resolved, the Board hereby authorizes the President and Chief Executive Officer, or his designee, to apply for required or advisable certificates, permits and approvals with regulatory and environmental agencies of the Commonwealth of Kentucky and the United States Federal Government or other entities, and to take any other actions, short of full equipment or service purchase obligations and project implementation, necessary or desirable to assure that environmental compliance requirements are met.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 12th day of September 2017.

Jody E. Hughes, Secretary

Corporate Seal

REDACTED

EXHIBIT C

MAPS

Subject to Motion for Confidential Treatment

REDACTED

EXHIBIT D

PLANS, SPECIFICATIONS AND DRAWINGS

Subject to Motion for Confidential Treatment

EXHIBIT E

Goss Samford
ATTORNEYS AT LAW PLLC

David S. Samford
david@gosssamfordlaw.com
(859) 368-7740

September 15, 2017

RECEIVED
SEP 15 2017
PUBLIC SERVICE COMMISSION

Via Hand Delivery
Mr. John S. Lyons
Acting Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

Re: Notice of Intent to File – PSC Case No. 2017-00376
In the Matter of: The Application of East Kentucky power Cooperative, Inc. for Approval to Amend its Environmental Compliance Plan and Recovery Costs Pursuant to Its Environmental Surcharge, Settlement of Certain Asset Retirement Obligations and Issuance of a Certificate of Public Convenience and Necessity and Other Relief

Mr. Lyons:

On behalf of East Kentucky Power Cooperative, Inc. ("EKPC"), please accept this letter as notice, pursuant to KRS 278.183(2), of EKPC's intent to file an Application in the above-styled matter on or after October 16, 2017. The Application will request approval of:

1. An Amended Environmental Surcharge Compliance Plan;
2. A Revised Environmental Surcharge to Recover the Costs of this Amended Plan;
3. A Certificate of Public Convenience and Necessity pursuant to KRS 278.020(1) for the Facilities associated with this Amended Plan;
4. Settlement of certain related Asset Retirement Obligations; and
5. All other necessary or appropriate relief to which EKPC may appear entitled.

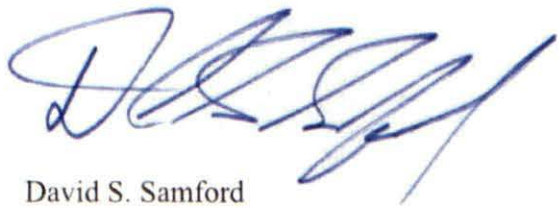
We respectfully request that the following parties representing EKPC be included on the Commission's Service List in this proceeding:

Mark David Goss
David S. Samford
M. Evan Buckley
Goss Samford, PLLC
mdgoss@gosssamfordlaw.com
david@gosssamfordlaw.com
ebuckley@gosssamfordlaw.com

Patrick Woods
East Kentucky Power Cooperative, Inc.
patrick.woods@ekpc.coop
psc@ekpc.coop

If you have any questions or require additional information, please do not hesitate to contact me.

Respectfully submitted,



David S. Samford

cc: Hon. Rebecca W. Goodman
Hon. Michael L. Kurtz

EXHIBIT F

MEMORANDUM

TO: Member System CEO's

FROM: Anthony S. Campbell

DATE: November 17, 2017

SUBJECT: Notice of Amendment to EKPC Environmental Compliance Plan and Environmental Surcharge Mechanism

On Friday, September 15, 2017, EKPC gave notice to the Kentucky Public Service Commission ("Commission") of its intent to file an Application for Approval of an Amendment to its Environmental Compliance Plan and Environmental Surcharge Mechanism. The notice also indicated EKPC would be seeking a Certificate of Public Convenience and Necessity ("CPCN") and would be settling certain Asset Retirement Obligations. EKPC plans to file this Application on or after Monday, November 20, 2017.

The amendment will enable EKPC to recover costs associated with the development and construction of facilities at the Spurlock Station that are necessary to comply with the Disposal of Coal Combustion Residuals from Electric Utilities Rule ("CCR Rule") and the Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("ELG Rule"). The development and construction of the facilities will occur over multiple years, with expected completion in 2024.

EKPC's largest coal-fired electric generation facility is the Spurlock Station. The four electric generation units began commercial operation between 1977 and 2009. EKPC has already heavily invested in environmental control equipment at the Spurlock Station. The four units at the Spurlock Station are among the least expensive electric generation units in the EKPC fleet and have a high availability factor. The CCR Rule became effective October 19, 2015 and applies to owners and operators of new and existing landfills and new and existing surface impoundments where CCR material is disposed. The ELG Rule became effective on January 4, 2016 and establishes revised technology-based effluent limitations and standards for various wastewater streams generated by coal-fired steam electric generating stations. The compliance option selected by EKPC makes modifications at the Spurlock Station that will preserve the long-term usefulness of the four generating units and avoids significant stranded costs which would have resulted from other compliance options considered. The estimated capital cost of compliance with the CCR Rule and ELG Rule is $262.4 million.

Pursuant to KRS 278.183(2), the Commission must issue its decision on the proposed compliance plan amendment and revisions to the surcharge mechanism within six months of the filing of the application. If EKPC files its application by November 20, 2017 and it is accepted as filed, a decision on the application could be expected by May 21, 2018. If the application is approved, cost recovery for the amendment could begin with the first monthly surcharge filing submitted after May 21, 2018.

EKPC's surcharge mechanism, as well as the Member Systems' surcharge pass-through mechanism, reflect formula-based calculations that are prepared each month to provide for the recovery of actual environmental compliance costs incurred during the period. EKPC's surcharge factor and the Member Systems' surcharge pass-through factors are billed to customers using the percentage of revenues approach. Consequently, there are no present or proposed rates associated with this application.

If approved, construction would begin in 2018 and continue through the end of 2024. The expected increase in the environmental surcharge at the wholesale level, retail level, and the estimated impact on the average monthly residential bill during the 2018 through 2025 period is shown in the table below. The estimated impact on average monthly residential bills is based on a monthly usage of 1,150 kWh.

Year Ending	Estimated Annual Revenue Requirement	Increase at Wholesale Level	Increase at Retail Level	Impact on Average Monthly Residential Bill
2018	$2,412,150	0.29%	0.21%	$0.17
2019	$8,601,481	1.03%	0.74%	$0.59
2020	$18,780,917	2.26%	1.63%	$1.29
2021	$30,894,044	3.71%	2.67%	$2.12
2022	$36,165,621	4.35%	3.13%	$2.48
2023	$38,490,186	4.63%	3.33%	$2.64
2024	$30,432,513	3.66%	2.64%	$2.09
2025	$24,094,760	2.90%	2.09%	$1.66

Once it is filed, a person may examine this Application at the offices of EKPC located at 4775 Lexington Road, Winchester, Kentucky. This Application may also be examined at the offices of the Commission located at 211 Sower Boulevard, Frankfort, Kentucky, Monday through Friday, 8:00 a.m. to 4:30 p.m., or through the Commission's Web site at http://psc.ky.gov . Any comments regarding this Application may be submitted to the Commission through its Web site or by mail to Public Service Commission, P. O. Box 615, Frankfort, Kentucky 40602.

The estimated bill impact contained in this notice is based on the environmental compliance plan amendment as proposed by EKPC but the Commission may order an environmental compliance plan that differs from the proposed environmental compliance plan and resulting estimated bill impacts contained in this notice.

A person may submit a timely written request for intervention to the Public Service Commission, P. O. Box 615, Frankfort, Kentucky 40602, establishing the grounds for the request including the status and interest of the party. If the Commission does not receive a written request for intervention within thirty (30) days of the initial publication or mailing of the notice, the Commission may take final action on the Application.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)	CASE NO. 2017-00376

DIRECT TESTIMONY OF DON MOSIER
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: November 20, 2017

Q. Please state your name, business address, and occupation.

A. My name is Don Mosier and my business address is East Kentucky Power Cooperative, Inc. ("EKPC"), 4775 Lexington Road, Winchester, Kentucky 40391. I am Executive Vice President and Chief Operating Officer at EKPC.

Q. Please state your education and professional experience.

A. I obtained my Bachelor of Science degree in civil engineering from the University of Virginia and my Master of Business Administration degree from the Kenan-Flagler Business School at the University of North Carolina. My professional experience includes work at Carolina Power & Light (now Duke Energy Carolinas) in Raleigh, North Carolina, developing merchant generation projects and marketing activities, regulatory affairs, and nuclear power plant engineering and operations. I also was an engineering manager of U.S. Operations for Canatom Corp., a Toronto-based engineering firm that provides nuclear plant engineering and construction services. Immediately prior to joining EKPC, I was Vice President of St. Louis-based Ameren Energy Marketing ("AEM"), a subsidiary of Ameren Corp. At AEM, I managed wholesale power trading, plant dispatch, North American Electric Reliability Corporation and SERC compliance, transmission and congestion management activities, and customer account management for Ameren Corporation's unregulated merchant generation fleet located in the Midcontinent ISO and PJM Interconnection, LLC ("PJM"), a Regional Transmission Organization.

Q. Please provide a brief description of your duties at EKPC.

A. I manage the day-to-day operations of power production and construction, power delivery, power supply, and system operations. I report directly to EKPC's President and Chief Executive Officer, Mr. Anthony S. Campbell.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to support EKPC's application in this proceeding by discussing EKPC's strategic goals, the relief it is seeking in this case; and the overall advantages and benefits that this particular proposal offers for EKPC, its Owner-Member Cooperatives ("owner-members") and their End-Use Retail Members ("retail members").

Q. Are you sponsoring any exhibits?

A. No.

Q. Can you please describe EKPC and its owner-members' system.

A. EKPC is a not-for-profit, rural electric cooperative corporation established under KRS Chapter 279 with its headquarters in Winchester, Kentucky. EKPC has $3.718 billion in assets and 696 employees. Our 2016 energy sales exceeded 12.6 million megawatt hours. We had total operating revenue in 2016 of $887 million and a net margin of $54 million. Pursuant to various agreements, EKPC provides electric generation capacity and electric energy to its sixteen owner-members: Big Sandy RECC, Blue Grass Energy, Clark Energy, Cumberland Valley Electric, Farmers RECC, Fleming-Mason Energy, Grayson RECC, Inter-County Energy, Jackson Energy, Licking Valley RECC, Nolin RECC, Owen Electric, Salt River Electric, Shelby Energy, South Kentucky RECC and Taylor County RECC. Those

owner-members in turn serve approximately 530,000 Kentucky homes, farms and commercial and industrial establishments in eighty-seven (87) Kentucky counties.

In total, EKPC owns and operates a total of approximately 2,965 MW of net summer generating capability and 3,267 MW of net winter generating capability. EKPC owns and operates coal-fired generation at the John C. Cooper Station in Pulaski County, Kentucky (341 MW) ("Cooper Station") and the Hugh L. Spurlock Station in Mason County, Kentucky (1,346 MW) ("Spurlock Station"). EKPC also owns and operates natural-gas fired generation at the J. K. Smith Station in Clark County, Kentucky (753 MW (summer)/989 MW (winter)) ("Smith Station") and the Bluegrass Station in Oldham County, Kentucky (501 MW (summer)/567 MW (winter)), and landfill gas-to-energy facilities in Boone County, Laurel County, Greenup County, Hardin County, Pendleton County and Barren County (16 MW total). In November 2017, EKPC added 8 MW of solar capacity when its Community Solar facility came online at the company's headquarters in Winchester, Kentucky. Finally, EKPC purchases hydropower from the Southeastern Power Administration at Laurel Dam in Laurel County, Kentucky (70 MW), and the Cumberland River system of dams in Kentucky and Tennessee (100 MW). EKPC's record peak demand of 3,507 MW occurred on February 20, 2015.

EKPC also owns 2,940 circuit miles of high voltage transmission lines in various voltages. EKPC also owns the substations necessary to support this transmission line infrastructure. Currently, EKPC has seventy-four (74) free-flowing interconnections with its neighboring utilities.

Q. What is EKPC's mission?

A. EKPC has a Mission Statement, which is this: "EKPC exists to serve its member-owned cooperatives by safely delivering reliable and affordable energy and related services." We seek to fulfill this Mission Statement by adhering to five core values: safety, service, honesty and integrity, respect and teamwork.

Q. Do you know whether EKPC has a strategic plan?

A. Yes. EKPC's Board has developed a strategic plan that it reviews and updates regularly. The current Strategic Plan was last updated in 2016 and includes eight strategic objectives in the areas of: governance, people, financial integrity, generation and transmission assets, rates and regulatory relations, communications and public relations, economic development and cyber and physical security. The Strategic Plan guides management in the day-to-day operations of the Company while also providing a roadmap for what we hope to accomplish over the long-term. The Strategic Plan was instrumental in helping us identify and develop the best possible solution to the challenges presented by the Disposal of Coal Combustion Residuals ("CCR") from Electric Utilities Rule ("CCR Rule"), the Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("ELG Rule") and state environmental regulations.

Q. How has EKPC's Strategic Plan assisted the Board and management develop this particular solution?

A. First, EKPC has stated that one of its strategic objectives is to "provide leadership and vision to identify, exercise due diligence and recommend…supply resources that diversify the portfolio via increased reliance on natural gas, viable renewable resources, distributed generation and bilateral market purchases." At the same

time, we also have a strategic objective to "maximize returns on capital investments and mitigate exposure to stranded costs to limit impact on system reliability and exposure to future regulatory changes." I can give you two examples from our recent history to illustrate how these strategic objectives are implemented in real life.

In 2016, we were forced to retire the Dale Station as a coal-fired electric generating station due to the impacts of the Mercury Air Toxics Standards Rule ("MATS"). The retirement of the four units at the Dale Station resulted in a loss of 200 megawatts (MW) of electric generating capacity. After a lengthy process, we were able to secure 567 MW of new winter capacity by acquiring the Bluegrass Station near LaGrange, Kentucky. As the Commission is aware, one-third of the Bluegrass Station's capacity is currently subject to a tolling agreement with the Louisville Gas & Electric Company. The Bluegrass Station acquisition represented a shift in EKPC's generation portfolio away from coal towards natural gas, but it also allowed us to maximize our peak diversity within PJM. It was a good business transaction that achieved value for our owner-members while also advancing the Board's efforts to diversify our generation portfolio.

Prior to the Bluegrass Station acquisition, however, we were confronted with the question of what to do at the Cooper Station in light of the MATS requirements. In that situation, the most prudent course of action was to tie the older Cooper 1 into the existing air quality control system serving Cooper 2. By doing this, EKPC was able to preserve a valuable, existing coal-fired generation resource at a very favorable price.

The lesson from these two prior situations is that EKPC's strategic objective to diversify its fleet while mitigating the risk of stranded assets are not mutually exclusive options. Sometimes it makes sense to make additional investments in the coal-fired generation that we already have in place. Other times, diversification is the better option. EKPC's Strategic Plan is flexible enough to not rigidly dictate any particular outcome which may or may not be in the best interest of our owner-members. As you come to understand the options in play when EKPC considered how to best comply with the CCR Rule and ELG Rule, you see that the proposed Environmental Compliance Plan ("Compliance Plan") amendment falls perfectly within the scope of what the Board is trying to accomplish strategically.

Q. With that in mind, please generally describe what EKPC is seeking in this proceeding.

A. EKPC is asking for several things. First, EKPC is requesting the Commission to authorize an amendment to the Company's Compliance Plan. The amendment will add a project that is necessary to comply with the CCR Rule and ELG Rule. I will refer to this as the CCR/ELG Project from now on. Second, EKPC is asking for a Certificate of Public Convenience and Necessity ("CPCN") for the CCR/ELG Project. Third, EKPC is asking the Commission to allow it to recover the costs of the CCR/ELG Project through its environmental surcharge mechanism, pursuant to KRS 278.183. Fourth, EKPC is seeking the Commission's approval to settle certain Asset Retirement Obligations associated with its existing coal ash pond at the Hugh L. Spurlock Station ("Spurlock Station") as part of the recovery of the cost of the CCR/ELG Project through the environmental surcharge mechanism. Finally, to the

extent that any other relief might be necessary to accomplish these four objectives, EKPC seeks such authorization from the Commission.

Q. Before we get into those topics, let me ask you some questions to help understand the legal authorities that have led EKPC to seek approval to amend its Environmental Compliance Plan. First, what is the CCR Rule?

A. Mr. Purvis provides a much more detailed description of the CCR Rule in his testimony, but I would broadly describe CCRs as being the residual material that is left over from the consumption of coal in the process of generating electricity. The CCR Rule is a federal environmental rule that severely restricts the way in which CCR from a coal-fired electric generation unit must be handled and dispersed.

Q. What is the ELG Rule?

A. Similar to the CCR Rule, the ELG Rule also arises from the combustion of coal in the process of generating electricity. Broadly speaking, the ELG Rule is a different federal environmental rule that applies to effluents from coal-fired generation units. As with the CCR Rule, the ELG Rule places very strict limitations on the effluent byproducts associated with coal-fired generation. Mr. Purvis also elaborates on the ELG Rule in his testimony.

Q. Is there any chance that the CCR Rule or the ELG Rule will somehow be replaced, repealed or superseded?

A. It is very unlikely that anything will happen to diminish the impact of the CCR Rule. By now, most all utilities, including EKPC, have already begun making investments to comply with the CCR Rule and there is nothing coming from the courts or the EPA to suggest that the CCR Rule will go away. In fact the EPA has

not indicated that there will be any relief in the compliance and reporting deadlines that commenced on October 17, 2017. The status of the ELG Rule is a little less settled. Although the ELG Rule is in full effect, the change in administrations in Washington has caused the EPA to reconsider portions of the ELG Rule. It is unclear what effect this will have, if any, upon future effluent limitation guidelines for coal-fired generation units. Unfortunately, however, the EPA's most recent action has not suspended the compliance deadlines for the ELG Rule. So, EKPC must move forward with its compliance plan right now. We cannot just sit back and hope that the ELG Rule goes away.

Q. What would happen if the EPA eventually decided to withdraw or vacate the ELG Rule?

A. If the EPA eventually withdrew or vacated the ELG Rule, EKPC would still be faced with more stringent effluent limitations coming from the Kentucky Energy Cabinet Department of Environmental Protection's Division of Water ("KDOW"). Again, Mr. Purvis discusses these obligations in more depth in his testimony, but the bottom line is that effluents from coal-fired generation stations are becoming more strictly regulated by both the federal government and state authorities. Thus, even if the ELG Rule were to be withdrawn or vacated, the portion of the CCR/ELG Project related to effluent management would still be needed to comply with regional and state mandates.

Q. Can you describe the deliberative process that EKPC undertook when considering how to best comply with the CCR Rule, the ELG Rule and the KDOW's anticipated requirements?

A. EKPC's Board and management have invested considerable time and attention to the scope and depth of the CCR Rule and ELG Rule and its impact upon the company. Once the initial drafts of the CCR Rule and ELG Rule were published, EKPC staff began evaluating the potential fleet impacts of pending environmental regulations for CCR and ELG, and started communicating on a regular basis with the EKPC Board regarding the emergence of the rules and the status of the evaluation. Additionally, a cross-functional team of internal and external attorneys and engineers were engaged to evaluate and assess strategies and site specific options for meeting the combined CCR Rule, ELG Rule and KDOW's requirements in their preliminary forms. That work continued and the team closely monitored the federal rulemaking process until the rules were issued in final form and went into effect. The EKPC Board was informed regularly regarding the details of the rulemaking, and development of potential actions that might become necessary for compliance. A preferred plan emerged, alternatives were evaluated, and discussions for a path forward began with the Board in 2016. A Project Scoping Report to develop the preferred CCR Rule & ELG Rule compliance project – which includes preliminary designs, a schedule, and a cost estimate – was developed and used as the basis for comparison with alternatives. The final recommendation was presented to the Board in February of 2017.

Moreover, as part of that due diligence, EKPC obtained a report from Navigant Consulting that described the economic value of the Spurlock Station on a forward basis over a twenty (20) year term. The report concluded that Spurlock 1 and Spurlock 2 offered substantial value for EKPC over the long-term as coal-

fired units, particularly in the base scenario and scenarios where fuel prices were greater than the base scenario or load growth was less than expected. This helped solidify our understanding that keeping the Spurlock 1 and Spurlock 2 assets operational was the best long-term option for EKPC.

Following a deliberative process covering several years and allowing for the maximum possible time to understand the rules and to assess the likelihood of them actually being implemented, the EKPC Board directed management to pursue the Compliance Plan that presented the reasonable, least-cost option in September 2017.

Q. Did EKPC consider any other options for complying with the CCR Rule and the ELG Rule other than CCR/ELG Project being proposed in this proceeding?

A. Yes. EKPC considered several other options. These are described in greater detail by Mr. Johnson in his testimony, but I would identify them here as follows:

- Converting Spurlock 1 and Spurlock 2 to natural gas-fired units;
- Retiring Spurlock 1 and Spurlock 2 and replacing that lost capacity with a new 600 MW combined cycle natural gas unit at the Smith Station while also purchasing 200 MW of power from the wholesale market through a bilateral power purchase agreement.
- Retiring Spurlock 1 and Spurlock 2 and replacing them with a long term market purchase of 800 MW of capacity and energy.
- Demolishing the wet scrubbers serving Spurlock 1 and Spurlock 2 and replacing them with a new dry-scrubber system.

As elaborated upon by Mr. Johnson and Ms. Hayes, none of these options was less expensive than the CCR/ELG Project and all of them carried unique risks. In addition, EKPC would incur significant stranded investment under these scenarios.

Q. In Case No. 2008-00408,[1] the Commission mandated that every utility should consider whether energy efficiency offered a viable alternative to constructing new generation assets. Did EKPC consider whether energy efficiency could be a means to achieving compliance with the CCR Rule and ELG Rule?

A. Yes. However, there is no conceivable way that energy efficiency could offset the loss of over 800 MW of baseload capacity and energy at Spurlock 1 and Spurlock 2. EKPC is committed to cost-effective energy efficiency and has developed several tariffs to promote it as part of its portfolio of demand side management tariffs, but energy efficiency is not a realistic method for replacing large generation units despite the Commission's mandate in Case No. 2008-00408. Likewise, there is no conceivable way to cover the potential loss of Spurlock 1 and Spurlock 2 with renewable resources. Solar, wind and landfill gas generation resources are all considered to be intermittent capacity. It would be imprudent to replace reliable baseload generation with intermittent capacity. Thus, neither energy efficiency nor renewable capacity offered EKPC a viable alternative for compliance with the CCR Rule or ELG Rule.

Q. What is involved in the construction of the CCR/ELG Project?

[1] *See In the Matter of Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007*, Rehearing Order, Case No. 2008-00408, p. 10 (Ky. P.S.C. July 24, 2012)

A. Mr. Johnson provides a greater description of the CCR/ELG Project in his testimony, but, broadly speaking, the CCR/ELG Project involves six major components, which are as follows:

- Bottom Ash Handling System – EKPC will convert the existing bottom ash system from a wet sluicing system to a new dry ash system on Spurlock 1 and Spurlock 2. In addition, a separate pyrites handling system with dewatering bins and settling basin will be installed.
- Wastewater Treatment System – EKPC will construct a new wastewater treatment plant to process flue gas desulfurization ("FGD") wastewater and blowdown from Spurlock 1 and Spurlock 2. The wastewater treatment plant will provide a physical/chemical treatment of the FGD blowdown and utilize an Optimized Mechanical Vapor Compression ("MVC") System that incorporates falling film evaporators ("FFE") designed for a flow of 240 gallons per minute ("GPM"). To accommodate excess wastewater flow, an additional 160 GPM of FGD wastewater will be consumed by ash mixing in the existing fly ash silos and by dry scrubber evaporation in the Gilbert Unit and Spurlock 4.
- Fly Ash Handling System – EKPC will construct a new fly ash storage silo and replace the existing transfer building with equipment to handle fly ash from Spurlock 1 and Spurlock 2. This addition is necessary to assure redundancy for ash removal since sluicing to the ash pond will no longer be available.
- Balance of Plant Systems – EKPC will install new piping, controls, instrumentation, electrical and mechanical equipment with the CCR/ELG

Project that are necessary to operate these new systems. As part of this work, EKPC will construct two new Power Control Module ("PCM") buildings as well as new 13,800 / 480 V station service transformers. The power feed from the switchyard to the MVC system will be made via new 138 kV / 13.8kV low resistance grounded transformers.

- Ash Pond Closure – EKPC's strategy is to identify, plan, permit and provide enough landfill space to meet end-of-life needs for the plant facility. As part of the ash pond impoundment closure, EKPC estimates that it will remove approximately 1.75 million cubic yards of CCR material from the existing sixty-seven (67) acre surface impoundment, which coincidentally represents approximately one year's ash production for normal operation at the Spurlock Station. CCR materials will be removed and placed in the Spurlock Station CCR Landfill. EKPC is in the process of permitting additional space adjacent to the existing landfill. Permitting this additional space will provide enough waste boundary for Spurlock Station to reach its end of life. To close the ash pond impoundment, CCR materials will be removed, the existing dams will be left in place, new topsoil and seed will be applied over disturbed areas, and a new water mass balance pond will be established within the footprint of the original pond. Upon the completion of the CCR removal, the Spurlock Station ash pond impoundment will be considered "clean-closed by removal."
- Water Mass Balance Pond Chemical Treatment System – EKPC will repurpose seventeen (17) acres of the existing surface impoundment as a new Water Mass Balance ("WMB") Pond. The WMB Pond will aid in settling constituents from

various plant process flows including the coal pile runoff stream, neutralization basins, clarifiers and air heater wash wastewater, non-chemical metal cleaning wastes and storm water to meet proposed discharge requirements. The WMB Pond will include a chemical treatment system to regulate pond pH, alkalinity, and total suspended solids and assist in the removal of iron and other chemical constituents ahead of discharging into the Ohio River pursuant to EKPC's Kentucky Pollutant Discharge Elimination System permit application.

Q. How will the CCR/ELG Project be implemented, if approved?

A. We have designed the CCR/ELG Project to be implemented in a way that causes the least possible disruption to the overall operation of the Spurlock Station. The schedule is designed to allow EKPC to timely comply with the CCR Rule and ELG Rule while taking into account several factors such as the long lead times associated with equipment orders for critical CCR/ELG Project components, the need to coordinate construction activities with planned unit outages and the time required to secure necessary regulatory approvals.

Q. How will the CCR/ELG Project be financed?

A. Mr. Stachnik provides a more detailed response to this question, but the short answer is that we primarily intend to use financing available from the Rural Utilities Service, which is available under our existing Trust Indenture, to provide the long-term financing for the CCR/ELG Project. Short-term financing necessary for construction will be available under our existing Credit Facility.

Q. What benefits to EKPC and its owner-members are associated with developing the CCR/ELG Project that is described in the Application?

A. EKPC has identified at least eleven distinct benefits that will accrue to it and its owner-members as a result of pursuing the CCR/ELG Project. First, EKPC will be able to retain 810 MW of existing, reliable, low-cost baseload generation capacity to supply the capacity and energy needs of its owner-members. The value of this cannot be understated. Preserving a known, existing resource eliminates a considerable amount of risk for EKPC going forward when compared to developing a new resource. Second, EKPC will be limiting the amount of stranded assets that would be required to be paid for by the owner-members and their retail members through rates by enabling existing utility plant to remain used and useful throughout its design life. Third, the CCR/ELG Project will have a broader impact upon the region by allowing EKPC to retain a significant source of coal-fired generation. This will have the effect of supporting the coal industry which has been hit hard in recent years. Fourth, the CCR/ELG Project presents the most reasonable, least-cost method for complying with the CCR Rule and the ELG Rule. Fifth, EKPC will be well-positioned to continue reaping the benefits from its ability to bid capacity and energy into the PJM wholesale markets. If EKPC was forced to retire Spurlock 1 and Spurlock 2, it would lose its status as a net generator in PJM and would lose the value of having peak diversity within the PJM markets. This solution allows us to preserve and maximize the value that EKPC receives from its membership in PJM. Sixth, the CCR/ELG Project furthers EKPC's efforts to provide reliable, safe, adequate and reasonable service to its owner-members at rates that are fair, just and reasonable. Seventh, it is desirable to remove a significant coal ash impoundment from a location that is adjacent to one of the largest rivers in North America and

within the 100-year flood plain. There are some obvious and prudent environmental benefits to this proposal. Eighth, EKPC is preserving its ability to comply with future environmental regulations that may be imposed by the EPA, the KDOW, the Ohio River Valley Water Sanitation Commission ("ORSANCO") or other authorities. This allows us to keep continued operation of the Spurlock Station as a valuable option for complying with any future environmental rules that come into being in the years ahead. Ninth, EKPC will not be interrupting the operations of International Paper or cause that customer to have to make significant capital investments to generate its own steam. This outcome is consistent with the cooperative values that place a great emphasis on meeting our customers' needs while also doing what is within our power to assist one of the largest employers in Mason County stay viable and competitive. Tenth, EKPC is assuring that it continues to have adequate generation assets to satisfy load requirements, which the Commission has singled out in a prior case as being an important objective. EKPC agrees that having physical assets in place to meet its native power demand is an important hedge against market volatility. Finally, EKPC is fulfilling its strategic objective to maintain a reliable coal-fired electric generation fleet. By any objective standard, the CCR/ELG Project that EKPC is proposing is a good solution and should be approved.

Q. Why is the CCR/ELG Project needed?

A. As described in the Application, in the testimony of EKPC's other witnesses and in my own testimony above, EKPC has no other option but to comply with the CCR Rule and the ELG Rule. Moreover, we must be cognizant of whatever state

environmental requirements that may come down from the KDOW. EKPC looked at several options for how best to achieve compliance in light of the Board's strategic plan and we have identified a plan that is sound, reasonable and doable. While the investment is significant, it is the reasonable, least cost option for meeting the ever-growing demands imposed by the federal and state regulators. Without the CCR/ELG Project moving forward, EKPC would be faced with options that are more expensive and less beneficial.

Q. Will the project result in wasteful duplication of facilities?

A. No. In fact, the CCR/ELG Project prevents the wasteful duplication of facilities. EKPC has made considerable investments in the Spurlock Station over the years. Walking away from that investment in Spurlock 1 and Spurlock 2 would result in EKPC having to spend hundreds of millions of dollars in new capital to replace assets that have many, many years of operations still available. Although the investment of $262.4 million in the Spurlock Station is itself substantial, it pales in comparison to what would have been required to pursue other options. Moreover, the CCR/ELG Project helps assure that EKPC's owner-members and their retail members are able to recognize and achieve the full value of the investments they have already made in the Spurlock Station through rates by minimizing the amount of stranded assets. For these reasons, the CCR/ELG Project avoids wasteful duplication and would satisfy that component of the Commission's inquiry as to whether a CPCN should be granted.

Q. Has EKPC provided its customers with the requisite notice of its filing?

A. Yes, EKPC filed its notice of intent as to the filing of this Application on September 15, 2017 and has provided the requisite notice of its filing to its owner-members as well. Copies of these notices are attached to the Application as Exhibits E and F respectively.

Q. Please summarize your testimony.

A. The CCR/ELG Project is a prudent solution to EKPC's need to comply with the CCR Rule and the ELG Rule. It helps EKPC achieve several specific strategic objectives and it offers a host of benefits and advantages to EKPC, its owner-members and their retail members. The CCR/ELG Project is needed and will not result in wasteful duplication. Accordingly, on behalf of the Company, I would respectfully ask the Commission to approve the amendment to EKPC's Compliance Plan, issue a CPCN for the CCR/ELG Project, approve cost recovery of the CCR/ELG Project through EKPC's environmental surcharge mechanism, and allow EKPC to settle the ARO and corresponding regulatory asset associated with the Spurlock Station ash pond as part of the completion of the CCR/ELG Project.

Q. Does this conclude your testimony?

A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)	**CASE NO. 2017-00376**

VERIFICATION OF DON MOSIER, P.E.

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF CLARK)

Don Mosier, P.E., Executive Vice President and Chief Operating Officer at East Kentucky Power Cooperative, Inc., being duly sworn, states that he has read the foregoing prepared direct testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Don Mosier

Don Mosier, P.E.

The foregoing Verification was signed, acknowledged and sworn to before me this 20th day of November, 2017 by Don Mosier.

Gwyn M. Willoughby

NOTARY PUBLIC

Commission No. 500144

My Commission Expires: 11/30/17

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)	CASE NO. 2017-00376

DIRECT TESTIMONY OF JERRY B. PURVIS ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: November 20, 2017

Q. Please state your name, business address, and occupation.

A. My name is Jerry B. Purvis and my business address is East Kentucky Power Cooperative, Inc. ("EKPC"), 4775 Lexington Road, Winchester, Kentucky 40391. I am the Vice President of Environmental Affairs for EKPC.

Q. Please state your education and professional experience.

A. I received a B.S. degree in Chemistry from Morehead State University and a B.S. degree in Chemical Engineering from the University of Kentucky. I also received a Master of Business Administration from Morehead State University. I have been employed by EKPC for 23 years serving in various positions. In 2011, I became the Director of Environmental Affairs at EKPC. I was promoted in 2017 to the position of Vice President of Environmental Affairs.

Q. Please provide a brief description of your duties at EKPC.

A. I am responsible for compliance with environmental laws, the preparation of applications for all environmental permits required for the construction and operation of generation stations, transmission facilities and landfills, and the preparation of supplemental environmental impact statements and documentation necessary to demonstrate compliance with the National Environmental Policy Act. I have also been responsible for the development of compliance plans for EKPC. I report directly to the Chief Operating Officer/Executive Vice President, Mr. Don Mosier.

Q. What is the purpose of your testimony in this proceeding?

A. I describe the environmental obligations that EKPC must satisfy. I will also explain the purpose, scope and requirements of the Disposal of Coal Combustion Residuals

from Electric Utilities Rule ("CCR Rule") and the Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("ELG Rule") and other applicable environmental regulations, including those associated with the Kentucky Energy and Environment Cabinet Department of Environmental Protection Division of Waste Management ("KDWM") and Division of Water ("KDOW") anticipated permit restrictions.

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring the matrix of all environmental permits represented in Exhibit JP-1, which also includes a copy of the KDOW KPDES permit application that has been submitted and is related to the CCR/ELG Project. I ask that this Exhibit be incorporated into my testimony by reference. EKPC is currently working on the Title V air permit application and anticipates that it will be filed in early 2019.

Q. What environmental mandates and obligations currently apply to EKPC as an electric utility?

A. Electric utilities are among the most heavily environmentally regulated companies in the United States. For instance, EKPC currently complies with nearly a dozen federal rules that have been promulgated under the authority of the Clean Air Act ("CAA") and Clean Water Act ("CWA") alone. Two additional environmental regulations that most significantly necessitate the amendment of EKPC's Environmental Compliance Plan are the CCR Rule and the ELG Rule.

Q. Describe EKPC's obligations under the CAA.

A. EKPC is subject to a plethora of rules under the CAA, including: New Source Performance Standards ("NSPS"); New Source Review ("NSR"); Title IV of the

CAA, including rules governing pollutants that contribute to acid deposition ("Acid Rain Program"); Title V operating permit requirements ("Title V"); Mercury and Air Toxics Standards ("MATS"); summer ozone trading program requirements promulgated after the United States Environmental Protection Agency ("EPA") acted upon Section 126 Petitions and the Ozone State Implementation Plan Call ("Summer Ozone Program"); National Ambient Air Quality Standards ("NAAQS") for Sulfur Dioxide ("SO_2"), Nitrogen Dioxide ("NO_2"), Carbon Monoxide ("CO"), Ozone, Particulate Matter ("PM"), Particulate Matter of 2.5 microns or less ("PM 2.5") and Lead; the Cross State Air Pollution Rule ("CSAPR"); and the Regional Haze Rule. The obligations imposed by the CAA and accompanying EPA regulations are costly for consumers.

Q. What obligations does EKPC have under the CWA?

A. EKPC must comply with the 316(b) Rule that applies to cooling water intake structures to limit aquatic impingement and entrainment mortality. Here in Kentucky, the EPA delegates authority under the National Pollution Discharge Elimination System ("NPDES") program to the KDOW. EKPC also complies with all existing Kentucky Pollutant Discharge Elimination System ("KPDES") requirements imposed by the KDOW.

Q. Before we get to the CCR Rule and the ELG Rule, what is the status of the Clean Power Plan ("CCP") from EKPC's perspective?

A. Yes. In addition to the foregoing federal mandates arising under the CAA, EKPC was preparing to comply with the CPP as proposed by the Obama Administration. While seeking to comply with the CPP, EKPC was also one of the lead plaintiffs in

a legal challenge to the legality of the EPA's proposed rule.[1] However, due to recent action by newly-appointed EPA Administrator Scott Pruitt, EKPC has suspended its compliance planning and awaits further guidance from federal and state environmental regulators as to whether the CPP will be pursued further.

Q. What are CCRs?

A. CCRs are a byproduct of the combustion of coal in the course of generating electricity. Generally speaking, CCRs take the form of fly ash, bottom ash, boiler slag and flue gas desulfurization ("FGD") materials.

Q. Has the combustion of coal at EKPC's Spurlock Station produced CCRs?

A. Yes. As I said, CCRs are a natural byproduct of the combustion of coal and Spurlock Station's processes produce fly ash, bed ash, bottom ash, boiler slag, and FGD materials.

Q. How have CCRs produced at the Spurlock Station been handled historically?

A. For Spurlock Station Unit #1 ("Spurlock 1") and Spurlock Station Unit #2 ("Spurlock 2"), bottom ash was sluiced using water to the ash pond and fly ash was transported to the silo storage (or sluiced to the ash pond). Spurlock Station Unit #3 and Spurlock Station Unit #4 are Circulating Fluidized Bed ("CFB") units and send bed ash, fly ash and gypsum laden fly ash to silo storage. CCR material stored in the silo is emptied and trucked to the dry ash landfill on site.

Q. Are you familiar with existing and/or proposed federal laws and regulations governing the disposal of CCR materials?

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[1] *See National Rural Electric Cooperative Association, et al. v. U.S. Environmental Protection Agency,* Case No. 15-1376 (D.C. Cir. Filed Oct. 23, 2015). (U.S. Sup. Ct., Feb. 9, 2016).

A. Yes. EKPC has been actively planning its efforts to comply with the EPA's CCR Rule for several years.

Q. What can you tell us about the CCR Rule?

A. The CCR Rule was first published in its proposed form by the EPA on June 21, 2010. Initially, the EPA offered alternative methods for classifying CCR materials as either hazardous or non-hazardous, "special" waste under Subtitle C of the Resource Conservation and Recovery Act ("RCRA") or as a solid waste under Subtitle D of the RCRA. Under either proposal, the EPA stated that it supported and endeavored to maintain the beneficial reuse of CCR material. Ultimately, the EPA's final CCR Rule was issued on December 19, 2014 and determined that CCR is a solid waste, classified as non-hazardous. The final CCR Rule is set forth in 80 Fed. Reg. 21301-21501 (April 17, 2015), with the effective date corrected in Fed. Reg. 21302 from October 14, 2015 to become effective on October 19, 2015. The CCR Rule applies to owners and operators of new and existing landfills and new and existing surface impoundments, including all lateral expansions of such landfills and surface impoundments, where CCR material is disposed.

Q. Does the CCR Rule apply to inactive surface impoundments?

A. Yes. The CCR Rule also has applicability to inactive CCR surface impoundments. However, the CCR Rule does not apply to: CCR landfills that ceased receiving CCR materials prior to the effective date of the CCR Rule; CCR landfills and impoundments at facilities that have ceased producing electricity prior to the effective date of the CCR Rule; CCR materials generated at facilities that are not part of an electric utility or independent power producer, such as manufacturing

facilities, universities and hospitals; CCR materials generated primarily from the combustion of fuels other than coal; CCR that is beneficially reused; CCR placement at active or abandoned underground or surface coal mines; or CCR material that is placed at municipal solid waste landfills.

Q. What was the EPA's objective in promulgating the CCR Rule?

A. The principle objectives of the CCR Rule are as follows: (1) to impose structural integrity requirements to reduce the risk of catastrophic failure of CCR landfills and impoundments; (2) protecting groundwater through monitoring and corrective actions, location restrictions and landfill and impoundment liner design criteria; (3) adopting operating criteria for CCR landfills and impoundments; (4) record-keeping, notification and publicly-available internet website posting obligations; (5) obligations for inactive CCR impoundments; (6) administration of state programs to implement the CCR Rule; (7) CCR landfill and impoundment closure obligations; and (8) guidelines for beneficial reuse of CCR materials.

Q. Why is the structural integrity of CCR landfills and impoundments important?

A. The structural integrity of CCR landfills and surface impoundments are important in order to safely protect the public and the environment from spillage of the contained coal combustion by-products. The new CCR Rule changes the standards by which CCR landfills and surface impoundments are designed, located, lined, managed, and rated. New safety and seismic factors standards and more frequent structural inspections are required by the CCR Rule to further minimize structural

failures. The goal of the CCR Rule is to close surface impoundments and ash landfills that pose a threat to the public, health and welfare.

Q. What new structural integrity requirements has the EPA imposed?

A. Except for incised units, owner/operators of all CCR surface impoundments are required to comply with technical requirements designed to maintain the structural integrity of the unit. For all CCR surface impoundments, owner/operators must identify units with a permanent ID marker and conduct periodic hazard potential classification assessments. The three classifications are "high hazard," "significant hazard" and "low hazard."

Owner/operators must develop an Emergency Action Plan ("EAP") if a unit is designated as a "high" or "significant" hazard. They must also cover embankment or dike slopes with either vegetation or an alternative form of slope protection. Additional structural integrity requirements apply to CCR surface impoundments that exceed a specified size threshold, either: a height of five feet or more and a storage volume of 20 acre feet or more; or a height of 20 feet or more. Owner/operators of these units are required to compile a history of construction for existing units or design and retain construction plans for new units. They must also conduct periodic structural stability assessments to identify any structural stability deficiencies and recommend any necessary improvements. Owner/operators must remedy deficiencies as soon as feasible. They must also conduct periodic safety factor assessments to ensure that each unit meets a calculated static factor of safety ("FOS") under end-of construction loading equal to, or exceeding, 1.30 for new units or a calculated static FOS under long-term, maximum storage pool conditions

equal to, or exceeding, 1.50. A calculated FOS under the maximum surcharge pool loading condition must equal or exceed 1.40. A calculated seismic FOS must equal or exceed 1.00. The calculated liquefaction FOS must equal or exceed 1.20. Units that fail to meet the requisite FOS, or fail to conduct the FOS assessment, must stop receiving CCR and initiate closure.

All assessments (*i.e.*, Hazard Potential, Structural Stability, FOS) must be conducted and completed every five years. The Key Implementation Dates for existing units to install a permanent marker is within eight months of the CCR Rule's publication. A history of construction must be prepared within 18 months of the CCR Rule's publication. Likewise, the initial hazard potential classification assessment, structural stability assessment, and FOS assessment must be completed within 18 months of the CCR Rule's publication. If applicable, an owner/operator must prepare an EAP within 24 months of the CCR Rule's publication. New units must meet all structural integrity requirements prior to placing CCR materials in the unit.

Q. How does the CCR Rule use monitoring and corrective action activities to protect groundwater?

A. All CCR surface impoundments, landfills and lateral expansions must install a groundwater monitoring system network to conduct groundwater monitoring. This includes inactive surface impoundments at active facilities unless they are closing within the three year timeframe.[2] CCR units must be in compliance with

[2] The CCR Extension Rule came after the promulgated CCR Rule and required inactive surface impoundments closing within three years to install a groundwater monitoring system.

requirements (up through detection monitoring and determination of background levels) within two years of the effective date of the CCR Rule.

The CCR Rule requires an annual report certifying compliance, including data, to be posted on the facility's website. Groundwater requirements must be met throughout the active life and closure/post-closure period. The System Requirements Performance Standards must consist of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that accurately represent background quality and the groundwater passing the waste boundary. There is a minimum of one upgradient and three downgradient wells, however, owner/operators must justify using the minimum number of wells.

Alternatively, owner/operators may choose to install a multi-unit system, certified by a professional engineer, that is equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system. The engineer must specify sampling and analysis procedures and test methods and establish background levels based upon a minimum of eight samples. The engineer must choose a statistical procedure to compare the background to upgradient concentrations. The number of samples for assessment and detection monitoring must be consistent with the statistical procedure chosen. The CCR Rule uses these requirements to monitor and measure the specified parameters and mathematical techniques to determine if a CCR unit may or may not be affecting groundwater.

Q. What location restrictions does the CCR Rule impose on CCR landfills and impoundments?

A. The CCR Rule establishes five location restrictions to ensure units are appropriately sited: 1) placement above the uppermost aquifer; 2) wetlands; 3) fault areas; 4) seismic impact zones; and 5) unstable areas. Units are prohibited from being sited in these areas unless specific demonstrations can be made and certified by a qualified professional engineer.[3]

Q. What liner design criteria are imposed upon CCR landfills and impoundments under the CCR Rule?

A. The CCR Rule requires new CCR units to have either a composite or alternative composite liner. The composite liner must consist of an upper component consisting of a 30 mil geomembrane ("GM") and a lower component of at least two feet of compacted soil with a hydraulic conductivity of no more than $1x10^{-7}$ cm/sec. A GM of high density polyethylene must be at least 60 mil thick. The upper and lower component must be installed in direct and uniform contact with one another. The alternative composite liner must consist of an upper component consisting of a 30 mil GM and a lower component that is not a GM with a liquid flow rate of no more than two feet of compacted soil with a hydraulic conductivity of no more than $1x10^{-7}$ cm/sec using Darcy's law.[4] If the lower component is compacted soil, the GM or upper component must be installed in direct and uniform contact.

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[3] The CCR Rule does not require location restrictsions until October 17, 2018.

[4] Darcy's Law is a widely-recognized method for determining the simple proportional relationship between the instantaneous discharge rate through a porous medium, fluid viscosity and the decrease in pressure over a known distance at a constant elevation. It is defined as:

$$Q = - \frac{\kappa A (p_b - p_a)}{\mu L}$$

New CCR landfills must also have a leachate collection and removal system that maintains less than 30 centimeter depth of leachate over the liner. Existing CCR landfills, regardless of liner type, can continue to operate for the remainder of their useful life. Existing CCR surface impoundments can continue to operate but must identify the liner design (composite, alternative composite, or a two foot layer of compacted soil with hydraulic conductivity no more than 1 $x10^{-7}$ cm/sec) no later than 18 months from the date of publication. Existing CCR surface impoundments that do not meet any of these three criteria for liner types or fail to make the designation within the specified timeframe are to be designated as "unlined." Existing "unlined" CCR surface impoundments that, as a result of leakage, exceed a groundwater protection standard must retrofit or close in accordance with requirements of the CCR Rule.

Q. You mentioned the adoption of operating requirements for CCR landfills and impoundments. Can you please elaborate on that subject matter?

A. Yes. The operating requirements fall into four main categories: fugitive dust control; run-on/run-off ("RORO"); hydrologic and hydraulic capacity requirements; and inspections. I will briefly describe each of these categories.

With regard to fugitive dust control, owner/operators of CCR units must adopt measures that will effectively minimize CCR from becoming airborne at the facility by developing and operating in accordance with a fugitive dust plan with adequate dust control measures for each site. Examples of control measures include: conditioning CCR with water or other liquid, locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system; using

wind barriers, compaction, or vegetative covers; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover. In addition, they must log citizen complaints about fugitive dust; prepare an annual CCR fugitive dust report that must include a description of the controls used, any citizen complaints received and a summary of any corrective actions taken.

With regard to landfill RORO, all landfills must have a control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm and collect and control the water volume from, at minimum, a 24-hour, 25- year storm. Owner/operators must prepare an initial RORO control system plan within 18 months of the CCR Rule's publication and revise these plans at least every five years. A RORO control system plan must document the system's design and construction, including engineering calculations.

The operating requirements relating to hydrologic and hydraulic capacity for surface impoundments state that all surface impoundments must have an inflow design flood control system to manage flow into and from the unit during, and following, the peak discharge of the inflow design flood. The inflow design flood is determined based on the hazard potential rating. Incised units must be designed for a 25-year flood and the owner/operator must prepare initial and periodic (every five years) inflow design flood control plans documenting how the system has been designed and constructed, including appropriate engineering calculations.

Finally, the operating requirements include specific mandates for inspections of surface impoundments and landfills. For instance, all CCR surface

impoundments must be inspected weekly by a qualified person for any signs of structural weakness or other conditions that are disrupting, or have the potential to disrupt, the operation or safety of the unit. This would include abnormal discoloration, flow, or discharge of debris or sediment from all outlets of hydraulic structures that pass underneath the base of, or through, the dike of the unit. All CCR surface impoundments must also be inspected monthly by a person qualified to monitor instrumentation. Any CCR surface impoundment exceeding a height of five feet or more and a storage volume of 20 acre feet or more, or having a height of 20 feet or more, must be inspected annually by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the unit is consistent with recognized and generally accepted good engineering practices. These annual inspections must include a review of all available information and documentation regarding the status and condition of the unit. Visual inspection of the unit and appurtenant structures (including any hydraulic structure underlying the base, or passing through, the dike of the unit) for signs of distress or malfunction is also required. Inspection results must be entered into the operating record. If a deficiency or release is identified during any inspection, the owner/operators must remedy the deficiency or release as soon as feasible. Weekly inspections must begin six months from the date of the CCR Rule's publication. The initial annual inspection must be completed nine months from publication.

Inspection Requirements for the CCR Landfills

All CCR landfills must be inspected weekly by a qualified person for any signs of structural weakness or other conditions that are disrupting or have the potential to

disrupt the operation or safety of the unit. All CCR landfills must be inspected annually by a qualified professional engineer. These annual inspections must include:

1) A review of all available information/documentation regarding the status and condition of the unit;

2) Visual inspection of the unit for signs of distress or malfunction of the unit;

3) Inspection results must be entered into the operating record;

4) If a deficiency or release is identified during any inspection, the owner or operator must remedy the deficiency or release as soon as feasible; and

5) Weekly inspections must begin six months from rule publication. The initial annual inspection must be completed nine months from rule publication.

Q. What additional record-keeping, notification and internet posting obligations does a utility have under the CCR Rule?

A. Owner/operators are required to document how the provisions of the CCR Rule are being satisfied by placing information in an operating record and providing notification of these actions to the State Director, which in this case is the Director of the Division of Waste Management. The owner/operator must also establish and maintain a publicly accessible internet site that posts documentation that has in many instances also been entered into the operating record. Most files must be maintained in the operating record and on the internet site for five years. As long as the facility remains active, the following documents must be maintained: 1) an Emergency Action Plan (only required for "high hazard" and "significant hazard" ash impoundments); 2) a Fugitive Dust Control Plan; and 3) a Closure Plan. The

State Director may request any demonstration or documentation required by the CCR Rule if such information is not available via the facility's publicly accessible internet site.

Q. What additional obligations are imposed for inactive CCR landfills and impoundments under the CCR Rule?

A. The CCR Rule also applies to inactive CCR surface impoundments that contain both CCR and liquid located at active facilities. If a unit closes within three years of publication of the CCR Rule,[5] it is excluded from further regulation. Inactive CCR landfills are not subject to the CCR Rule.

Q. Can you describe the CCR landfill and impoundment closure obligations that arise from the CCR Rule?

A. Owner/operators must prepare closure and post-closure care plans. Closure of a CCR unit must be completed either by leaving the CCR material in place and installing a final cover system or by removing the CCR material and rehabilitating the unit (clean closure). The CCR Rule establishes timeframes to initiate and complete closure activities and authorizes an owner/operator to obtain extensions of time due to circumstances beyond the facility's control. Thus, CCR landfills must complete closure within six months, with the possibility of one two-year extension. CCR surface impoundments must complete closure within five years, with the possibility of one two-year extension for units smaller than 40 acres and five two-year extensions for units greater than 40 acres. The CCR Rule also establishes alternative closure procedures in situations where an owner/operator has

[5] The CCR Extension Rule came after the promulgated CCR Rule and required inactive surface impoundments closing within three years to install a groundwater monitoring system.

no alternative disposal capacity or is permanently closing the coal-fired boiler in the foreseeable future. Extensions are not available for units that fail to demonstrate or meet FOS requirements.

Q. What guidelines for beneficial reuse of CCR materials are included in the CCR Rule?

A. The CCR Rule does not regulate CCR that is beneficially used. The CCR Rule provides a comprehensive description of beneficial reuse to distinguish between beneficial reuse and disposal. Any beneficial reuse projects started six months after publication of the CCR Rule need to determine if they comply with the criteria contained in the definition of beneficial reuse of CCR. For instance, the CCR Rule clarifies that a use of CCR material that does not satisfy the regulation is disposal.

There are two types of beneficial reuse. The first category is encapsulated beneficial reuses which bind the CCR material into a solid matrix that minimizes mobilization to the surrounding environment. Examples include filler or lightweight aggregate in concrete, a replacement for, or a raw material used in, the production of cementitious components in concrete or bricks. The second category is unencapsulated beneficial reuses, which does not bind the CCR material into a solid matrix. Examples of unencapsulated beneficial reuses include flowable fill, structural fill and soil modification/stabilization.

To qualify as beneficial reuse, the CCR material must: 1) provide a functional benefit; 2) substitute for the use of a virgin material, thereby conserving natural resources that would otherwise need to be attained through practices such as extraction; 3) meet relevant product specifications, regulatory standards, or

design standards when available, and when such standards are not available, the CCR material must not be used in excess quantities; and 4) be comparable to or lower than environmental releases to ground water, surface water, soil, and air from analogous products made without CCR materials, or below relevant regulatory and health-based benchmarks for human and ecological receptors, if the CCR material is used in an unencapsulated form involving placement on the land of 12,400 tons or more in non-roadway applications.

Q. You also mentioned that there are portions of the CCR Rule that describe the administration of state programs to implement the CCR Rule. Can you please describe those portions of the CCR Rule in more detail?

A. Kentucky adopted and promulgated the federal CCR Rule under 401 KAR 46. The state regulations provide a mechanism by which new facilities can be permitted and existing special waste landfills can be transitioned to federal CCR landfills. In addition, Kentucky's regulations implement and adopt the federal CCR regulations by reference and provide a permit program, financial assurances and transitional documentation. Once guidance for permitting is complete at the federal level, Kentucky will enhance and revise its existing permit program under 401 KAR 46.

Q. How will the proposed CCR/ELG Project allow EKPC to comply with the CCR Rule?

A. The proposed Environmental Compliance Plan amendment modifies the facilities at Spurlock Station to meet the new standards and requirements laid out above by the CCR Rule.

Q. Are you familiar with the ELG Rule as well?

A. Yes.

Q. Please describe the ELG Rule.

A. The ELG Rule was published in its proposed form by the EPA on June 7, 2013. The ELG Rule established revised technology-based effluent limitations and standards for various wastewater streams generated by coal-fired steam electric generating stations. As such, the ELG Rule establishes the best available technology economically achievable requirements for existing facilities. After taking considerable public comment, the ELG Rule became effective on January 4, 2016. The ELG Rule requires that all permits issued in the first permitting cycle following the third anniversary of the effective date of the ELG Rule should include a compliance schedule established by the state regulator, in this case the KDOW. However, in a letter dated April 12, 2017, the EPA announced it was reconsidering portions of the final ELG Rule that applied to bottom ash transport water and FGD wastewater. On September 18, 2017, the EPA published a new Final Postponement Rule that postponed the earliest compliance deadline for these two ELG waste streams but otherwise maintained the ELG standards during the reconsideration. Although, EPA is reconsidering the rule for bottom ash transport water and FGD wastewater, as it stands today, the new requirements will apply for bottom ash transport water and FGD wastewater "as soon as possible beginning November 1, 2020, but no later than December 31, 2023."

Q. Did EKPC take any actions to comply with the ELG Rule prior to the issuance of the Final Postponement Rule?

A. Yes. EKPC has been actively engaged in designing a compliance option that would satisfy the ELG Rule's requirements. To illustrate, prior to the EPA announcing its partial reconsideration of the ELG Rule, EKPC elected to seek the alternative technology allowed under the rule for evaporation, which allowed EKPC to comply with the ELG Rule no later than December 31, 2023. While EKPC will monitor any changes in the ELG standards for bottom ash transport water and FGD wastewater due to the EPA's reconsideration of those standards, the underlying mandates have not yet actually changed. EKPC must, under the September 18, 2017 Final Postponement Rule still meet the current ELG standards by these two waste-streams by no later than December 31, 2023. The EPA has stated that it hopes to complete its reconsideration of the standards by the Fall of 2020, but without an extension of the compliance deadlines right away, that reconsideration will likely come too late, practically speaking.

Q. How does the CCR/ELG Project allow EKPC to comply with the ELG Rule in its current form?

A. The CCR/ELG Project allows EKPC to modify its existing Spurlock Station facilities to meet the new numeric EPA effluent limitation guideline standards for FGD waste water as a result of scrubbing Spurlock 1 and Spurlock 2 and zero water discharge for the transport of fly ash and bottom ash. Spurlock 1 and Spurlock 2 would convert their wet bottom ash system to a dry ash system conveying bottom ash without the use of transport water. In addition to the CCR/ELG Project, should EKPC design and build a new landfill, EKPC would meet the new standards for leachate collection and numeric water effluent discharge.

Q. Why is it important to develop a single compliance strategy for the CCR Rule and the ELG Rule rather than two separate strategies developed in isolation?

A. Since there exists a strong nexus between CCR material and how it is transported, EKPC decided to view the two rules in relation to one another. Should the surface impoundment close at Spurlock Station, the station would lose its ability to store bottom ash and treat its water effluents. EKPC would need to find an alternative way to store bottom ash and treat its water effluents, essentially, the lost functionality of the surface impoundment (ash pond). Closure of an unlined ash pond meets the requirements of the CCR Rule. Finding an alternative way to treat its effluents in order to meet the new ELG's and Kentucky's water quality based effluent limitations was the basis of the combined strategy deployed. Meeting the new standards in water effluents would mean installing new waste water treatment for the affected units because Spurlock 1 and Spurlock 2 currently rely upon wet FGD's.

Q. Are there any other reasons why EKPC is pursuing the CCR/ELG Project?

A. Yes. While the CCR Rule and the ELG Rule are the primary drivers behind EKPC's request to amend its existing Environmental Compliance Plan, there are other environmental authorities which also make the proposed CCR/ELG Project a prudent course of action for EKPC.

Q. Please elaborate on that response.

A. Separate and apart from EKPC's obligations under the ELG Rule as implemented during the current NPDES / KPDES permit renewal cycle, EKPC anticipates that the KPDES permitting process itself will include enhanced metals limitations.

Moreover, EKPC's existing KPDES is implicated in a planned expansion of its existing, or a proposed new, CCR landfill pursuant to the CCR Rule and 401 KAR Chapter 46, with increased location restrictions, liner requirements, leachate collection requirements, groundwater monitoring and other technical requirements are anticipated to apply.

Q. Please describe what this is likely to entail.

A. EKPC must comply with the ELG Rule until such time as it is vacated. Under the NPDES rules, Kentucky must demonstrate whether existing effluent sources cause, or contribute to, harm to streams. Industrial activity that includes discharging effluents into receiving streams must meet water quality-based effluent limitations ("WQBELs") under the delegated EPA water program. The final authority on WQBELs under the NPDES / KPDES program is the KDOW pursuant to 401 KAR 10:026 – 10:031. KDOW reviews the water quality data submitted by EKPC and determines through a reasonable potential analysis ("RPA") if the industrial activity causes, or contributes to, harm to the receiving stream. For Spurlock Station that stream is primarily the Ohio River.

If current or projected water quality data shows the Spurlock Station's discharge will have a reasonable potential to exceed an applicable water quality standard, limits will be imposed on the discharge point. Importantly, these WQBELs are in addition to any ELG limits that have been imposed. Often, however, the same control equipment used to meet ELGs will ensure compliance with WQBELs.

Q. Is KDOW's regulation of WQBELs in addition to the regulations that EKPC faces under the ELG Rule?

A. Yes. Under the applicable administrative regulation, 401 KAR 10:031, industrial water dischargers are required to meet the state-based WQBELs. The administrative regulation establishes water quality standards to protect surface waters in regards to human health, ecology and the environment.

Q. What is the status of EKPC's efforts to comply with KDOW's rules?

A. EKPC developed a KPDES permit renewal application and submitted it to KDOW. In issuing the renewal permit, KDOW must make a determination on whether EKPC's industrial activity wastewater discharges cause, or contribute to, instream exceedances of water quality standards or otherwise harms the receiving stream in accordance with the CWA and pursuant to the NPDES program. Should the RPA demonstrate that pollutants will be above the water quality standards, KDOW will place new WQBELs in the permit. EKPC will have to comply with the new WQBELs as authorized in the KPDES permit. Regardless of the compliance timeline for ELG, EKPC will be required to meet new WQBELs contained in the KPDES permit as authorized by the KDOW at the Ohio River. In order to meet the new WQBELs and the ELGs, EKPC has determined the best and most reasonable alternative is to install the water treatment equipment and water mass balance pond in accordance with the Burns and McDonnell Scoping Report.

Q. In addition to the CCR Rule, the ELG Rule and the KDOW WQBELs mandate, are there any other environmental standards which support EKPC's plan to construct the CCR/ELG Project?

A. Yes. EKPC is also subject to the authority of the Ohio River Valley Water Sanitation Commission ("ORSANCO"), which is proposing its own onerous permitting limitations on discharges into the Ohio River.

Q. What is the source of ORSANCO's authority?

A. The 74th Congress of the United States authorized by Public Resolution 104 and approved a Compact between the States of Indiana, West Virginia, Ohio, New York, Illinois, Kentucky, Pennsylvania, Virginia and Tennessee by Public Act No. 739 on June 8, 1936, effective July 11, 1940 to protect the drainage area basin of the Ohio River. Each of the signatory States pledge to faithfully cooperate to control future pollution in, and abatement of, the existing pollution from the rivers, streams and water in the Ohio River basin: 1) in a satisfactory sanitary condition suitable for use as a public and industrial water supply after reasonable treatment; 2) for recreational usage; 3) capable of maintaining fish and other aquatic life; 4) free from unsightly or malodorous nuisances due to floating solids or sludge deposits; and 5) adaptable to such other uses as may be legitimate.

Q. What is ORSANCO planning?

A. ORSANCO plans to protect human health, by instituting the following criteria for bacteria and chemical constituents to be met outside the mixing zone:

A. BACTERIA:

1. Protection of public water supply use -- public water supply use shall be protected at all times. Fecal coliform bacteria content shall not exceed 2,000/100 mL as a monthly geometric mean based on not less than five samples per

month.

2. Maximum allowable level of E. coli bacteria for contact recreation -- for the months of April through October, measurements of E. coli bacteria shall not exceed 130/100 mL as a 90-day geometric mean, based on not less than five samples per month, nor exceed 240/100 mL in more than 25 percent of samples.

B. CHEMICAL CONSTITUENTS:

Not to exceed the following concentrations:

Constituent Concentration (mg/L)

Arsenic (total) 0.010

Barium (total) 1.0

Chloride 250.0

Fluoride 1.0

Mercury (total) 0.000012

Nitrite + Nitrate Nitrogen 10.0

Nitrite Nitrogen 1.0

Phenolics 0.005

Silver (total) 0.05

Sulfate 250.0

Q. How would you summarize all of these authorities?

A. Even if the CCR Rule or the ELG Rule were to be suspended, revoked or not enforced, other environmental agencies will still likely require EKPC and other

coal-generating electric utilities in the state to move forward with most, if not all, of the components of the proposed CCR/ELG Project.

Q. Is the CCR/ELG Project necessary for EKPC to be able to comply with the CCR Rule, the ELG Rule and the other environmental mandates you mentioned?

A. Yes. If EKPC is not able to construct the CCR/ELG Project it will be forced to retire or replace Spurlock 1 and Spurlock 2. As described in the testimony of Mr. Johnson and Ms. Hayes, the costs of those options are considerably higher than following through on the proposed CCR/ELG Project.

Q. In your professional opinion, is the CCR/ELG Project a reasonable way to comply with all the environmental obligations you have described?

A. Yes.

Q. Please summarize your testimony.

A. In order to comply with the CCR Rule and the ELG Rule, EKPC must make investments at the Spurlock Station to change the way that it handles and disposes of CCR materials while also managing the effluent from its coal-fired electric generation processes. The CCR/ELG Project that EKPC has put together will allow it to timely comply with these two federal rules while also positioning EKPC to also comply with anticipated mandates in its pending water permit from the KDOW.

Q. Does this conclude your testimony?

A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR APPROVAL TO AMEND ITS ENVIRONMENTAL COMPLIANCE PLAN AND RECOVER COSTS PURSUANT TO ITS ENVIRONMENTAL SURCHARGE, SETTLEMENT OF CERTAIN ASSET RETIREMENT OBLIGATIONS AND ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITYAND OTHER RELIEF	)	**CASE NO. 2017-00376**

VERIFICATION OF JERRY PURVIS

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF CLARK)

Jerry Purvis, Vice President of Environmental Affairs at East Kentucky Power Cooperative, Inc., being duly sworn, states that he has read the foregoing prepared direct testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Jerry Purvis

The foregoing Verification was signed, acknowledged and sworn to before me this 20th day of November, 2017 by Jerry Purvis.

Gwyn M. Willoughby
NOTARY PUBLIC

Commission No. 500144

My Commission Expires: 11/30/17

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

Item No.	Permit/Clearance	Regulatory Agency	Details	When Required	Anticipated Agency Review Time	Associated Fees	Submitted/Received
Federal							
1	Clean Water Act - Section 404 Permit	U.S. Army Corps of Engineers, Louisville District	Required to dredge or place fill in jurisdictional waters of the U.S. (WOUS), including wetlands. Nationwide Permit (NWP): Less than 0.5 acre of WOUS impacts, Individual Permit: Greater than 0.5 acre WOUS impacts. Ash ponds are condidered a non-jurisdictional waste treatment system and exempted from Section 404 review.	Prior to construction	Up to 120 days for a NWP, if a pre-construction notification is required; 12 to 24 months for an Individual Permit	No application or mitigation fees	N/A - No impacts to jurisdictional waters or wetlands are anticipated based on the Project's proposed equipment and work locations.
2	Endangered Species Act Coordination and Compliance	U.S. Fish & Wildlife Service (FWS), Ecological Services	If the project will impact federally-listed species or potential habitat, coordination with the FWS is required. The FWS will determine the level of effort needed for the project to proceed (e.g., habitat assessment, species surveys, etc.).	Prior to construction	30 days for initial response, additional 30 days for determination of field survey results (if required)	No fees unless mitigation for impacts to suitable bat habitat is required.	N/A - Due to the nature of the site, no impacts to endangered species are anticipated.
3	Migratory Bird Treaty Act / Bald and Golden Eagle Protection Act Compliance	U.S. Fish & Wildlife Service (FWS), Ecological Services	Required when construction or operation of a proposed facility could impact migratory birds or their nests.	Prior to construction	30 days for data request, 30 days for report review	No fees	N/A - Due to the nature of the site, no impacts to migratory birds are anticipated.
4	Obstruction Evaluation / Airport Airspace Analysis - Notice of Proposed Construction or Alteration	Federal Aviation Administration (FAA)	Required for the construction or alteration of structures 200 feet above ground level or within the distance to height ratio from the nearest point of a FAA airport runway.	Prior to construction	45+ days	No fees	N/A - No temporary construction equipment or permanent structures will exceed the 200 feet above ground level notification requirement.
5	Spill Prevention, Control, and Countermeasure Plan Amendment	U.S. Environmental Protection Agency (EPA)	An amendment to the facility's SPCC Plan will be required to address operational changes.	Prior to operation	Not required to submit the SPCC Plan to the EPA for review, unless requested.	No fees	SPCC Plan will be updated prior to operations.
6	National Environmental Policy Act (NEPA) Review	USDA Rural Utilities Service (RUS)	Per RUS's Environmental Policy and Procedures (7 CFR Part 1970), the proposed facility modifications to meet the CCR/ELG requirements will require NEPA review due to EKPC request for financial assistance from RUS.	Prior to construction	Categorical Exclusion with Environmental Report - 6 to 9 months Environmental Assessment - up to 2 years for approval	No fees	By letter dated February 24, 2017, RUS concurred that project meets the criteria for a Categorical Exclusion not requiring an Environmental Report, provided activities occur within the previuosly disturbed facility and there are no new extrordinary circumstances.
State - Kentucky							
7	Air Quality Construction/Operating Permit (PSD)/Title V	Kentucky Department of Environmental Protection Division for Air Quality	Required for new major stationary sources of air emissions or increased air emissions, including the silo(s)/baghouses and any increased truck traffic.	Prior to foundation construction	12-18 months from application submittal	No fees	Permit Application submittal January 2018 Anticipated permit receipt January - June 2019
8	Permit to Construct Across or Along a Stream	Kentucky Department of Environmental Protection Division of Water	In addition to authorizing stream crossings, this permit also provides floodplain construction approval. Project should not impact any streams.	Prior to construction	20 business days for floodplain impact approval	No fees	N/A - No new structures or fill are anticipated in the 100-year floodplain of the Ohio River.
9	Section 401 Water Quality Certification (WQC)	Kentucky Department of Environmental Protection Division of Water	The purpose of the WQC is to confirm that the discharge of fill materials (Section 404 Permit) will be in compliance with the State's applicable water quality standards.	Prior to construction	If a Section 404 Individual Permit is required, then separate WQC approval from the State could take 12 months.	Up to $5,000 for stream impacts Wetland impacts -- $500 per acre, up to $5,000	N/A - No impacts to jurisdictional waters or wetlands are anticipated based on the Project's proposed equipment and work locations.
10	One-Time/Temporary Discharge Request for Off-Permit Authorization	Kentucky Department of Environmental Protection Division of Water	Required for temporary discharges of wastewater outside of permitted discharges. Can be used for hydrostatic testing of pipelines and/or tanks.	Prior to testing	30 days	No fees	If required, request will be made to the KDOW at least 30 days prior to discharge.
11	Best Management Practices (BMP) Plan	Kentucky Department of Environmental Protection Division of Water	Because the facility has an existing KPDES Operational Discharge Permit (see Item 13), the facility is not required to obtain a General Permit for Stormwater Discharges Associated with Construction Activities.	Prior to construction	No State approval required.	No fees	The facility BMP Plan will be followed during construction activities to prevent degradation of Waters of the Commonwealth.
12	KPDES Operational Discharge Permit Modification	Kentucky Department of Environmental Protection Division of Water	The facility will be required to modify its existing KPDES Operational Discharge Permit (KY0022250) to address operational changes related to the discharge of wastewaters.	Prior to operation	180 days prior to operational changes	$7,000	Permit Renewal Application submitted October 2, 2017 Anticipated permit receipt October 2018.
13	Special Waste Landfill Permit	Kentucky Department of Environmental Protection Division of Waste Management	Required prior to construction of a landfill for the disposal of utility waste.	Prior to construction	Not seeking a modification to the existing landfill	No fees	By letter dated August 2, 2017, the KDWM confirmed that the facility is deemed to have a Registered Permit-By-Rule per 401 KAR Chapter 46.
14	National Historic Preservation Act – Section 106 Clearance	Kentucky Heritage Council - State Historic Preservation Office (SHPO)	Under Section 106 of the National Historic Preservation Act, Federal agencies must work with the State Historic Preservation Office to address potential impacts to resources listed in or determined eligible for the National Register of Historic Places.	Prior to construction	45 Days	$40 for Preliminary Site Check through SHPO database	N/A - No impacts to cultural resources are anticipated as project impacts would occur within previously disturbed areas.

EXHIBIT JP-1
Pages 2 thru 1245

EAST KENTUCKY POWER COOPERATIVE

September 29, 2017

Sara Anderson, Branch Manager
DEP Kentucky Pollutant Discharge Elimination System
Surface Water Permits Branch, Kentucky Division of Water (KDOW)
300 Sower Boulevard, 3rd Floor
Frankfort, Kentucky 40601

Dear Ms. Anderson:

Subject: Supplement to KPDES Permit Renewal Application
East Kentucky Power Cooperative, Inc.
H.L. Spurlock Station
KPDES Permit Number KY0022250

East Kentucky Power Cooperative, Inc. (EKPC), on behalf of H.L. Spurlock Power Station (Spurlock), submits this application for your consideration to revise the existing Kentucky Pollutant Discharge Elimination System (KPDES) permit. Enclosed are Form1, Form C, Form F, Attachment's A - H, a description of the drainage areas, and a request for a compliance schedule should the KDOW make determinations for any new water quality based effluent limitations above the reasonable potential analysis thresholds. EKPC is supplementing information to KDOW in regards to the KPDES permit renewal application for EKPC's Spurlock Station that was originally submitted as required by KDOW regulations on November 21, 2003. Supplemental application information was also submitted in August 2012. Our intent is to provide a robust permit application to KDOW which will allow efficient use of KDOWs resources.

Moreover, EKPC would like to provide the following as clarifications and additional requests, which are more fully detailed in Attachment A and other attachments to this application supplement.

Drainage Areas Clarification

A hydrology model was created for the site using ESRI ArcGIS Desktop 10.4 software. The model was verified by a site walkthrough and additional field verification of drainage features. The model identified changes in the drainage areas on developed portions of the site versus those shown on existing drainage maps. Twelve additional drainage areas were identified during this evaluation and are shown on the drainage map presented in Attachment E and summarized in the table below.

4775 Lexington Road 40391
P.O. Box 707, Winchester
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
http://www.ekpc.coop

Drainage Area	Area (acres)	Brief Description
00A	29.89	Road west of Coal Storage Area
00B	7.18	Area around Fuel Oil Tanks (Oil containment berm drainage)
00C	2.07	Area around Waste Water Treatment
00D	27.68	Unit 1 and 2 Cooling Towers
00E	56.99	Unit 3 and 4 Cooling Towers; Acid storage tanks
00F	15.80	Area between Ash Pond and Railroad tracks; Road west of Ash Pond
00G	45.14	Main Entrance Road
00H	4.21	Road south of Coal Storage Area
00I	186.00	North Haul Road drainage
00J	30.63	East Haul Road drainage
00K	106.43	Landfill access road
00L	114.76	Landfill access road

EKPC proposes to KDOW, that CCR haul roads be subject to Best Management Practices (BMPs), in-lieu of outfalls. Therefore, no KPDES outfalls have been associated with drainage areas 00A, 00G, 00H, 00I, 00J, 00K, and 00L. No other significant industrial activity which is exposed to storm water was found in drainage areas 00B, 00C, 00D, and 00E. A BMP Plan has been prepared and implemented at the site that describes housekeeping, preventative maintenance, as well as inspection and training programs that have been adopted by the facility to properly manage storm water runoff quality from these areas.

Some existing outfall drainage areas have been reduced based on the detailed investigation. Updated drainage areas have been incorporated into the current KPDES Form F submittal. A summary of revised outfalls and drainage areas is found in Attachment E.

Reduction of Toxicity Testing Requirements

On November 19, 2002, EKPC requested that toxicity testing requirements include only *Ceriodaphnia dubia* testing with a single grab sample collected annually. On December 6, 2002, KDOW indicated that the single species request was approved; however, the request for annual testing was not approved because these testing variables are not options for biomonitoring under the current permit. Correspondence related to this issue has been included in Attachment A. For the renewed KPDES permit, EKPC requests that toxicity testing requirements include only *Ceriodaphnia dubia* testing with a single grab sample collected annually, as opposed to quarterly.

Outfalls 008 and 011

Outfalls 008 and 011 are included in both Form F and Form C. These outfalls consist of a mixture of storm water, groundwater seepage, and leachate from the ash landfill. Per the instructions for Form F, this type of outfall must be included on Form 1, Form C, and Form F. For these two locations, the data for Form F was taken from the routine data collected as part of the KPDES permit requirements, using only data from days where significant precipitation events occurred.

Scrubber Blowdown Water Management

Since the last permit application, the wet flue gas desulfurization (FGD) scrubber blowdown water for Units 1 and 2 has been redirected from the coal pile runoff pond to the ash pond. This change has been reflected in the water balance diagram in Appendix C.

Ammonia Monitoring Plan Requirement

Because the fly ash from the four units is trucked dry to the landfill, there is little potential for adverse impact on wastewater discharges related to ammonia slip from operation of the selective catalytic reduction (SCR) systems for nitrogen oxide (NOx) emissions control on Units 1 and 2 or the selective non-catalytic reduction (SNCR) systems employed on Units 3 and 4. Monitoring data included in Form C for ammonia-nitrogen for Outfall 001 confirm that ash stored in the ash pond and FGD blowdown have not resulted in ammonia discharge concerns. Based upon this data, EKPC requests that the renewal permit not require continuation of an ammonia monitoring plan.

Mixing Zones and Compliance Schedules

Based on the assumption that the water quality criteria are applied at the end of the discharge pipe, EKPC has noted instances in their laboratory data where samples at various outfalls have exceeded one or more water quality criteria for their respective receiving streams. EKPC Spurlock outfalls either discharge to Lawrence Creek or the Ohio River. Both of these waterways have significant water flow, even during low flow conditions. EKPC requests that KDOW establish a mixing zone for the permitted outfalls in accordance with the requirements listed in 401 KAR 10:029, Section 4(1). The mixing zone request also applies to the future plant modifications set out in Attachment A to the application. Should KDOW need additional information to support the approval of a mixing zone geometric limits, specific data, sizing the mixing zones for outfalls, prior studies and design documents will become available.

Based upon EKPC's review of the Form C monitoring data, EKPC does not expect the imposition of any new first time WQBELs in the renewal permit after establishment of appropriate mixing zones based upon a reasonable potential analysis. However, should the KDOW determine otherwise, EKPC requests appropriate compliance schedules and an opportunity to provide the necessary justification for such schedules, including future plant modifications as discussed in Attachment A.

With respect to mercury, the Ohio River Valley Water Sanitation Commission (ORSANCO) revised its mixing zone criteria for mercury for existing sources in 2015. Responsibility for assigning mixing zones for ORSANCO's mercury standard of 12 ppt is now delegated to Division. EKPC is in the process of planning for wastewater treatment systems to achieve compliance with EPA's 2015 effluent limitations guidelines ("ELGs"). Those projects, when implemented, will serve to reduce the amount of mercury discharged to the Ohio River. However, uncertainty as to the requirements of the final ELG rule, the Postponement rule, future EPA Rulemaking and its implementation deadlines, which is discussed below, makes it nearly impossible to delineate the impact of the new effluent limitations on Outfall 001 at this time. Accordingly, it is infeasible to consistently comply with ORSANCO's 12 ppt mercury standard until, at a minimum, the required ELG treatment systems are fully operational, which as discussed below is projected as December 31, 2023 consistent with EPA's September 18, 2017 postponement rule. For this reason, EKPC requests that KDOW establish a mixing zone for the permitted Ohio

River outfalls for ORSANCO's mercury standard. Any reasonable potential analysis for mercury should be based upon KDOW's mercury standard at 401 KAR 10:031.

Effluent Limit Guideline (ELG) Compliance Schedule

EPA, on September 30, 2015, finalized a rule revising the effluent guidelines regulations for the Steam Electric Power Generating Point Source category (40 CFR Part 423). The rule sets the first federal limits on the levels of toxic metals in wastewater that can be discharged from power plants, based on technology improvements in the steam electric power industry over the last three decades. The ELG rule set compliance deadlines that were to be achieved as soon as possible - beginning November 1, 2018, but also no later than December 31, 2023.

However, on April 25, 2017 EPA postponed the compliance deadlines set forth in the ELG Rule and announced it would likely reconsider aspects of the final rule. On August 11, 2017, EPA announced it would reconsider the ELGs for FGD wastewater and bottom ash transport water in a new rulemaking. The outcome of that reconsideration will have a significant impact on EKPC's compliance plans. Accordingly, EKPC requests that a reopener be included in the renewed permit to authorize development of a revised compliance approach, compliance schedule, and applicable technology-based discharge limits at such time as the EPA rulemaking and reconsideration are resolved.

Likewise, should the self-implementing CCR rule pursuant to the WIIN Act, future EPA CCR and 401 KAR 45 / 46 permit program and pending litigation in the Franklin Circuit Court affect the closure of Spurlock's surface impoundment (ash pond) for storage and treatment, EKPC requests the opportunity to re-open the KPDES permit for tiered limits and a compliance plan to meet the water quality standards for the receiving stream, the Ohio River.

On September 18, 2017, EPA announced its postponement of the ELG compliance deadlines for the two wastestreams under reconsideration. As established by EPA's September 18, 2017 ELG Postponement rule, the earliest compliance dates for FGD wastewater and bottom ash transport water have been delayed until November 1, 2020 to allow EPA to complete its reconsideration of the ELG standards for those two wastewater streams. However, the outside compliance deadline of December 31, 2023 has been retained with the understanding that:

> In light of the compliance date postponements being finalized today, in determining the "as soon as possible date," EPA believes it would be reasonable for permitting authorities to consider the need for a facility to make integrated planning decisions regarding compliance with the requirements for all of the wastestreams currently subject to new, more stringent requirements in the 2015 Rule, as well as the other rules identified in § 423.11(t) to the extent that a facility demonstrates such a need. This could include harmonizing schedules to the extent provided for under the 2015 Rule for meeting the 2015 Rule requirements for fly ash transport water and FGMC wastewater to allow time for a facility to have certainty regarding what their ultimate requirements will be under the steam electric ELGs, as well as the requirements under the other rules listed in § 423.11(t).

82 Fed. Reg at 43498- 43499.

As set forth in Attachment A, based upon its need to make integrated planning decisions, EKPC proposes the following as the as soon as possible ELG compliance dates:

- ELG Compliance – December 31, 2023 as soon as possible

EKPC understands that given the timing of this application submittal that legacy wastewater standards will apply based on Best Practicable Treatment (BPT) until the above referenced as soon as possible dates occur. In light of the same treatment systems being used to ensure compliance with water quality standards, EKPC requests that compliance schedules for any first time water quality based limits be co-extensive with the FGD wastewater ELG compliance date.

EPA Approval of the removal of the KY Acute Selenium

EPA has approved Kentucky's removal of the acute selenium criterion from 401 KAR 10:031 WQ standards in a letter dated July 24, 2017 to Secretary Charles Snavely. See attachment H.

Allowable Thermal Discharge

EKPC requests that KDOW grant a daily maximum temperature limit of 110 degrees F for Outfall 001 in accordance with the ORSANCO standards to protect human health from potential scalding concerns. Outfall 001 includes the return of cooling water that is discharged back into the Ohio River. Water quality and aquatic life will remain protected by the existing monthly average temperature limits, which take in-stream mixing into account. The requested daily maximum limit is consistent with the discharge limit set by ORSANCO to protect primary contact recreation use of the river.

We look forward to working with you on the renewal of Spurlock's KPDES permit. We appreciate your efforts in this matter, and if you have any questions regarding the enclosed application, please feel free to contact Todd Svoboda or myself at 859-744-4812.

Sincerely,

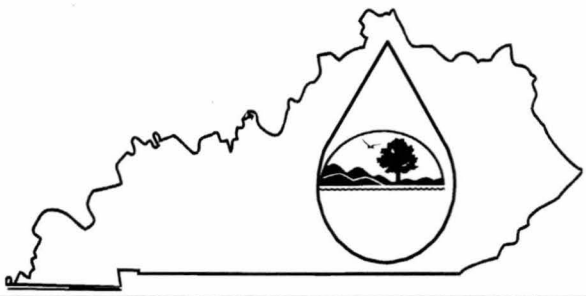
Jerry Purvis
Vice President, Environmental Affairs

Enclosures:
KPDES Form 1
KPDES Form C
KPDES Form F
Attachment A - Facility Description, Toxicity Testing Correspondence
Attachment B - Facility Topographic / Location Map
Attachment C - Water Balance Diagrams
Attachment D - Laboratory Data
Attachment E – Site Drainage Maps
Attachment F – List of Significant Materials and Safety Data Sheets
Attachment G – Storm Water Control Measures

Attachment H – EPA Approval Letter of Kentucky's Acute Water Quality Criterion for Selenium

Cc:
Peter Goodmann, Director
Nick Lester, KDOW
Jason Hurt, KDOW
Craig Johnson, EKPC
Joe VonDerHaar, EKPC

KPDES FORM 1



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

This is an application to: (check one)

- ☐ Apply for a new permit.
- ☒ Apply for reissuance of expiring permit.
- ☐ Apply for a construction permit.
- ☐ Modify an existing permit.
  Give reason for modification under Item II.A.

A complete application consists of this form and one of the following:
Form A, Form B, Form C, Form F, or Form SC

For additional information contact:
Surface Water Permits Branch (502) 564-3410

I. FACILITY LOCATION AND CONTACT INFORMATION	AGENCY USE							
A. Name of Business, Municipality, Company, Etc. Requesting Permit East Kentucky Power Cooperative, Inc.								
B. Facility Name and Location	C. Primary Mailing Address (all facility correspondence will be sent to this address). **Include owner's mailing address (if different) in D.**							
Facility Location Name: EKPC H.L. Spurlock Power Station	Facility Contact Name and Title: Mr. ☒ Ms. ☐ Joseph VonDerHaar							
Facility Location Address (i.e. street, road, etc., **not P.O. Box**): 1301 West Second St.	Mailing Address: 1301 West Second St.							
Facility Location City, State, Zip Code: Maysville, KY 41056	Mailing City, State, Zip Code: Maysville, KY 41056							
D. Owner's name (if not the same as in part A and C): East KY Power Cooperative, Inc.	Facility Contact Telephone Number: 606-883-3165							
Owner's Mailing Address: 4775 Lexington Road, Winchester, KY 40391	Owner's Telephone Number (if different): 859-744-4812							

II. FACILITY DESCRIPTION

A. Provide a brief description of activities, products, etc: Wholesale Electric Generation – coal fired (**SEE ATTACHMENT A)**

H.L. Spurlock Generating Station (Spurlock) is a four-unit coal-fired electric generating facility located on approximately 2,791 acres adjacent to the Ohio River in Maysville, Kentucky

B. Standard Industrial Classification (SIC) Code and Description

Principal SIC Code & Description:	4911 – Electric Services		
Other SIC Codes:	NA		

III. FACILITY LOCATION

A. Attach a U.S. Geological Survey 7 ½ minute quadrangle map for the site. (See instructions) **SEE ATTACHMENT B**

B. County where facility is located: Mason	City where facility is located (if applicable): Maysville
C. Body of water receiving discharge: Ohio River and Lawrence Creek	
D. Facility Site Latitude (degrees, minutes, seconds): 38 degrees, 42 minutes, 00 seconds North	Facility Site Longitude (degrees, minutes, seconds): -83 degrees, 49 minutes, 03 seconds West
E. Method used to obtain latitude & longitude (see instructions):	Google Earth

IV. OWNER/OPERATOR INFORMATION

A. Type of Ownership:
☐ Publicly Owned ☒ Privately Owned ☐ State Owned ☐ Both Public and Private Owned ☐ Federally owned

B. Operator Contact Information (See instructions)

Name of Treatment Plant Operator:	Telephone Number:
East Kentucky Power Cooperative, Inc.	859-744-4812
Operator Mailing Address (Street): 4775 Lexington Road	
Operator Mailing Address (City, State, Zip Code): Winchester, KY 40391	
Is the operator also the owner? Yes ☒ No ☐	Is the operator certified? If yes, list certification class and number below. Yes ☐ No ☒
Certification Class: NA	Certification Number: NA

V. EXISTING ENVIRONMENTAL PERMITS

Current NPDES Number:	Issue Date of Current Permit:	Expiration Date of Current Permit:
KY0022250	11/1/00	4/30/04
Other DOW Operational Permit #: NA	Kentucky DMR Permit Number(s): NA	Sludge Disposal Permit Number: NA
Other Existing Environmental Permit #: 201-161-51 (Radiation License)	Other Existing Environmental Permit #:	Other Existing Environmental Permit #: NA

Which of the following additional environmental permit/registration categories will also apply to this facility?

CATEGORY	EXISTING PERMIT WITH NO.	PERMIT NEEDED WITH PLANNED APPLICATION DATE
Air Emission Source	V-15-063 (Title V air permit)	NA
Solid or Special Waste	081-00005 (Landfill)	NA
Hazardous Waste - Registration or Permit	KYD072865272 (CESQG)	NA

VI. DISCHARGE MONITORING REPORTS (DMRs)

KPDES permit holders are required to submit DMRs to the Division of Water on a regular schedule (as defined by the KPDES permit). Information in this section serves to specifically identify the name and telephone number of the DMR official and the DMR mailing address (if different from the primary mailing address in Section I.C).

A. DMR Official (i.e., the department, office or individual designated as responsible for submitting DMR forms to the Division of Water):	Brad Condley, Manager, Environmental Compliance
DMR Official Telephone Number:	859-744-4812

B. DMR Mailing Address:
- Address the Division of Water will use to mail DMR forms (if different from mailing address in Section I.C), or
- Contact address if another individual, company, laboratory, etc. completes DMRs for you; e.g., contract laboratory address.

DMR Mailing Name:	Brad Condley, Manager of Environmental Compliance
DMR Mailing Address:	4775 Lexington Road
DMR Mailing City, State, Zip Code:	Winchester, KY 40391

VII. APPLICATION FILING FEE

KPDES regulations require that a permit applicant pay an application filing fee equal to twenty percent of the permit base fee. Please examine the base and filing fees listed in "Form 1 Instructions" and enclose a check payable to "Kentucky State Treasurer" for the appropriate amount. For permit renewals, please include the KPDES permit number on the check to ensure proper crediting. Please see the separate document "General Instructions" for an expanded description of the base fee amounts.

Facility Fee Category:	Filing Fee Enclosed:
Major Industry	$1,400 (mailed separately)

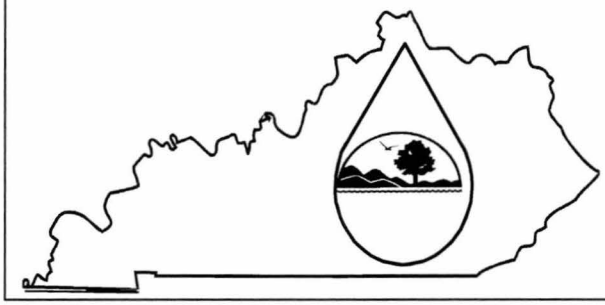
VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (type or print):	PHONE NUMBER: 859-744-4812
Mr. ☒ Ms. ☐ Jerry Purvis (Vice President, Environmental Affairs)	EMAIL: jerry.purvis@ekpc.coop
SIGNATURE	DATE:

Return completed application form and attachments to: **DEP Kentucky Pollutant Discharge Elimination System, Surface Water Permits Branch, Division of Water, 300 Sower Boulevard, 3rd Floor, Frankfort, KY 40601. Direct questions to: Surface Water Permits Branch at (502) 564-3410.**

KPDES FORM C



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact Surface Water Permits Branch, (502) 564-3410.

Name of Facility: H.L. Spurlock Power Station	County: Mason
I. OUTFALL LOCATION	AGENCY USE

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

Outfall No. (list)	LATITUDE			LONGITUDE			RECEIVING WATER (name)
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	
001	38	42	9.1	-83	48	52.8	Ohio River
002 (internal)	38	41	59.4	-83	48	46.3	Discharge to Outfall 001 which discharges to the Ohio River
003 (internal)	38	41	59.6	-83	48	46.3	Discharge to Outfall 001 which discharges to the Ohio River
004 (internal)	NA	NA	NA	NA	NA	NA	Discharge to Outfall 001 which discharges to the Ohio River
005 (emergency overflow)	38	42	9.8	-83	48	59.3	Ohio River
007	38	42	0.2	-83	48	46.9	Ohio River
008	38	41	9.01	-83	49	46.76	Lawrence Creek
009 (intake)	38	42	9.6	-83	48	23.5	Ohio River
010 (internal)	38	41	59.5	-83	48	47.9	Discharge to Outfall 001 which discharges to the Ohio River
011	38	41	43.15	-83	50	16.77	Lawrence Creek
012 (internal)	38	41	51.5	-83	48	39.56	Discharge to Outfall 001 which discharges to the Ohio River

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfall. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures. **SEE ATTACHMENTS A AND C**

B. For each outfall, provide a description of: (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary. **SEE ATTACHMENTS A AND C**

OUTFALL NO. (list)	OPERATION(S) CONTRIBUTING FLOW		TREATMENT	
	Operation (list)	Avg/Design Flow (include units)	Description	List Codes from Table C-1
001	Secondary Lagoon Discharge (scrubber blowdown, cooling tower blowdown, metal cleaning wastes)	3.88/6.61 MGD	Sedimentation, oil skimming, reuse for ash slurrying	1-U, 4-C, 4-A
002 (internal)	Unit #1 Cooling Tower Blowdown	0.50/0.91 MGD	Disinfection/Dechlorination	2-E, 2-F, 2-H
003 (internal)	Unit #2 Cooling Tower Blowdown	0.67/1.56 MGD	Disinfection/Dechlorination	2-E, 2-F, 2-H
004 (internal)	Metal Cleaning Wastewater	0/0.1 MGD	Chemical precipitation	2-C
005 (emergency overflow)	Emergency Coal Pile Runoff	0/0.77 MGD	Sedimentation, Surface Runoff	1-U, 4-A
007	Reverse Osmosis Reject	0.25/0.31 MGD	NA	4-A
008	Coal Combustion Residual Landfill Stormwater Runoff	0.30/11.58 MGD	Sedimentation, Surface Runoff	1-U, 4-A
009	Intake	8.43/19.81 MGD	NA	NA
010 (internal)	Unit #3 Cooling Tower Blowdown	0.46/1.04 MGD	Disinfection/Dechlorination	2-E, 2-F, 2-H
011	Coal Combustion Residual Landfill Stormwater Runoff	0.09/3.43 MGD	Sedimnetation, Surface Runoff	1-U, 4-A
012 (internal)	Unit #4 Cooling Tower Blowdown	0.55/1.05 MGD	Disinfection/Dechlorination	2-E, 2-F, 2-H

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES (Continued)

C. Except for storm water runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☒ Yes (Complete the following table.) ☐ No (Go to Section III.)

OUTFALL NUMBER (list)	OPERATIONS CONTRIBUTING FLOW (list)	FREQUENCY		FLOW				
		Days Per Week (specify average)	Months Per Year (specify average)	Flow Rate (in mgd)		Total volume (specify with units)		Duration (in days)
				Long-Term Average	Maximum Daily	Long-Term Average	Maximum Daily	
004	Metal Cleaning Wastes, Boiler Tube Cleaning (see Attachment A for others)	3-5 (during cleaning)	NA	0.196	varies	196,000 gal/year	196,000 gal	3-5 days (occurs once every 8-12 years)

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ Yes (Complete Item III-B) List effluent guideline category: **40 CFR PART 423**

☐ No (Go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measures of operation)?

☐ Yes (Complete Item III-C) ☒ No (Go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents the actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

AVERAGE DAILY PRODUCTION			Affected Outfalls (list outfall numbers)
Quantity Per Day	**Units of Measure**	**Operation, Product, Material, Etc. (specify)**	
NA	NA	NA	NA

IV. IMPROVEMENTS

A. Are you now required by any federal, state or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

☐ Yes (Complete the following table) ☒ No (Go to Item IV-B)

IDENTIFICATION OF CONDITION AGREEMENT, ETC.	AFFECTED OUTFALLS		BRIEF DESCRIPTION OF PROJECT	FINAL COMPLIANCE DATE	
	No.	Source of Discharge		Required	Projected
NA	NA	NA	NA	NA	NA

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered 5-18.

D. Use the space below to list any of the pollutants (refer to SARA Title III, Section 313) listed in Table C-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

POLLUTANT	SOURCE	POLLUTANT	SOURCE
Allyl alcohol	Component of Hypersperse MCD700 (membrane deposit control agent)	Sodium bisulfite	Sodium Bisulfite
Aluminum sulfate	Component of Klaraid CDP1304 (removal of suspended solids from intake water)	Sodium hydroxide	Component of Caustic Soda, Mercontrol 8034 and Optisperse HTP3001 (boiler treatment chemical)
Ammonia	Anhyrous Ammonia and Ammonium Hydroxide	Sodium hypochlorite	Component of Bleach-12.5% (cooling tower biocide)
Ethylene diaminetetracetic acid	Component of Kleen MCT511 (revese osmosis membrane cleaner)	Sodium nitrate	Component of Optisperse ADJ8400 (boiler corrosion inhibitor)
Formaldehyde	Component of Hypersperse MCD700 (membrane deposit control agent)	Sodium phosphate (dibasic)	Component of Optispherse HP9420 (powdered internal boiler treatment chemical)
Naphthenic acid	Component of Mobiltac 375 NC (gear oil)	Sulfuric acid	98% sulfuric acid
Potassium permanganate	Cairox Potassium permanganate (storng oxidant)		

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

A. Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes (List all such pollutants below) ☒ No (Go to Item VI-B)

NA

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge of or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ Yes (Identify the test(s) and describe their purposes below) ☐ No (Go to Section VIII)

Permit requirement to perform 48-hour static toxicity test with water fleas (Ceriodaphnia dubia) quarterly at Outfall 001.

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ Yes (list the name, address, and telephone number of, and pollutants analyzed by each such laboratory or firm below) ☐ No (Go to Section IX)

NAME	ADDRESS	TELEPHONE (Area code & number)	POLLUTANTS ANALYZED (list)
ALS Environmental	1740 Union Carbide Drive South Charleston, WV 25303	(304) 356-3168	Color, BOD, Fecal Coliform
McCoy & McCoy Laboratories, Inc.	P.O. Box 907 Madisonville, KY 42431	(270) 821-7375	Color, BOD, Fecal Coliform, Titanium
ALS Environmental	3352 128th Avenue Holland, MI 49424	(616) 399-6070	SVOC's, VOC's, COD, Bromide, Ammonia, Nitrate-Nitrite, Organic Nitrogen, Phenols, Cyanide, Total Organic Carbon, Titanium
Pace Analytical Services, LLC	1638 Roseytown Road – Suites 2,3,4 Greensburg, PA 15601	(724) 850-5600	Radionuclides
East Kentucky Power Coorperative – Central Laboratory	4775 Lexington Rd Winchester, KY 40391	(859) 744-4812	Total Suspended Solids, Chloride, Fluoride, Hardness, Oil & Grease, Sulfate, Aluminum, Barium, Boron, Cobalt, Iron, Magnesium, Molybdenum, Manganese, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Zinc

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (type or print):	TELEPHONE NUMBER (area code and number):
Jerry Purvis – Vice President, Environmental Affairs	859-744-4812
SIGNATURE	DATE

V. INTAKE AND EFFLUENT CHARACTERISTICS (Continued from page 3 of Form C)										OUTFALL NO. 001		
Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.												
1 POLLUTANT	2 EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg. Value		b. No of Analyses
	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Biochemical Oxygen Demand (BOD)	6.50	343					1	mg/L	lbs/d	48.0	3427	1
b. Chemical Oxygen Demand (COD)	32.0	1687					1	mg/L	lbs/d	14.0	999	1
c. Total Organic Carbon (TOC)	4.50	237					1	mg/L	lbs/d	2.80	200	1
d. Total Suspended Solids (TSS)	32.7	1756	32.7	24.5	13.5	32.7	43	mg/L	lbs/d	62.8	3299	40
e. Ammonia (as N)	1.00	44.5	1.00	0.770	0.267	1.00	40	mg/L	lbs/d	0.0440	3.14	1
f. Flow (in units of MGD)	VALUE 9.55		VALUE 4.83		VALUE 3.89		1155	MGD		VALUE 6.47		1154
g. Temperature (winter)	VALUE 36.7		VALUE 36.7		VALUE 23.9		34	°c		VALUE 10.1		601
h. Temperature (summer)	VALUE 36.7		VALUE 36.7		VALUE 29.7		40	°c		VALUE 23.3		549
i. pH	MINIMUM 7.11	MAXIMUM 8.09	MINIMUM 7.30	MAXIMUM 8.01			76	STANDARD UNITS				

Part B - In the MARK "X" column, place an "X" in the Believed Present column for each pollutant you know or have reason to believe is present. Place an "X" in the Believed Absent column for each pollutant you believe to be absent. If you mark the Believed Present column for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		6 INTAKE (optional)		
	a.	b.	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
	Believed Present	Believed Absent	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Bromide (24959-67-9)	X		6.00	316					1	mg/L	lbs/d	ND	ND	1
b. Chloride	X		686	36132					1	mg/L	lbs/d	23.8	23.8	1
c. Chlorine, Total Residual		X												
d. Color	X		20.0						1	PCU		15.0		1
e. Fecal Coliform (Or E.coli	X		25.0						1	col/100mL		32.0		1
f. Fluoride (16984-48-8)	X		4.24	223					1	mg/L	lbs/d	ND	ND	1
g. Hardness (as $CaCO_3$)	X		2795	138456	2795	138456	1407	57481	42	mg/L	lbs/d	125	7366	40
h. Nitrate - Nitrite (as N)	X		3.00	158					1	mg/L	lbs/d	1.10	78.5	1
i. Nitrogen, Total Organic (as N)	X		1.40	73.8					1	mg/L	lbs/d	ND	ND	1
j. Oil and Grease	X		ND	ND	ND	ND	ND	ND	49	mg/L	lbs/d			
k. Phosphorous (as P), Total 7723-14-0	X		0.200	10.5					1	mg/L	lbs/d	0.0680	4.85	1
l. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium Total		X												
(4) Radium, 226, Total		X												
(5) Strontium-90, Total		X												
(6 Uranium		X												

Part B - Continued

1. POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg. Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg. Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
m. Sulfate (as SO_4) (14808-79-8)	X		1359	71652					1	mg/L	lbs/d	51.9	3705	1
n. Sulfide (as S)		X												
o. Sulfite (as SO_3) (14286-46-3)		X												
p. Surfactants		X												
q. Aluminum, Total (7429-90)	X		314	12.9					1	µg/L	lbs/d	1420	76.7	1
r. Barium, Total (7440-39-3)	X		126	5.19					1	µg/L	lbs/d	61.0	3.30	1
s. Boron, Total (7440-42-8)	X		11958	493					1	µg/L	lbs/d	39.0	2.11	1
t. Cobalt, Total (7440-48-4)	X		6.70	0.276					1	µg/L	lbs/d	2.00	0.108	1
u. Iron, Total (7439-89-6)	X		379	15.6					1	µg/L	lbs/d	2292	124	1
v. Magnesium Total (7439-96-4)	X		126	5					1	µg/L	lbs/d	61.0	3.30	1
w. Molybdenum Total (7439-98-7)	X		51.0	2.10					1	µg/L	lbs/d	ND	ND	1
x. Manganese, Total (7439-96-6)	X		10825	446					1	µg/L	lbs/d	247	13.3	1
y. Tin, Total (7440-31-5)		X												
z. Titanium, Total (7440-32-6)	X		0.0140	0.738					1	mg/L	lbs/d	0.0140	0.999	1

Part C – If you are a primary industry and this outfall contains process wastewater, refer to Table C-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in the **Testing Required** column for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark this column (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in the **Believed Present** column for each pollutant you know or have reason to believe is present. Mark "X" in the **Believed Absent** column for each pollutant you believe to be absent. If you mark either the **Testing Required** or **Believed Present** columns for any pollutant, you must provide the result of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	X			2.99	0.163	2.99	0.163	0.944	0.0427	15	µg/L	lbs/d	ND	ND	13
2M. Arsenic, Total (7440-38-2)	X			14.7	0.921	14.7	0.921	11.3	0.502	15	µg/L	lbs/d	0.877	0.0519	13
3M. Beryllium Total (7440-41-7)	X			ND	ND	ND	ND	ND	ND	15	µg/L	lbs/d	ND	ND	13
4M. Cadmium Total (7440-43-9)	X			1.89	0.103	1.89	0.103	0.526	0.0250	15	µg/L	lbs/d	0.0278	0.00141	13
5M. Chromium Total (7440-43-9)	X			5.15	0.281	5.15	0.281	3.55	0.153	15	µg/L	lbs/d	0.920	0.0485	13
6M. Copper Total (7550-50-8)	X			7.81	0.426	7.81	0.426	5.46	0.234	15	µg/L	lbs/d	2.76	0.154	13
7M. Lead Total (7439-92-1)	X			1.40	0.0757	1.39	0.0757	0.267	0.0137	15	µg/L	lbs/d	2.23	0.117	13
8M. Mercury Total (7439-97-6)	X			32.8	0.00156	32.8	0.00156	13.0	0.000630	13	ng/L	lbs/d	1.92	0.000111	13
9M. Nickel, Total (7440-02-0)	X			23.1	1.26	23.1	1.26	13.3	0.629	15	µg/L	lbs/d	3.25	0.179	13
10M. Selenium, Total (7782-49-2)	X			39.2	1.71	39.2	1.71	17.4	0.835	15	µg/L	lbs/d	0.504	0.0304	13
11M. Silver, Total (7440-28-0)	X			ND	ND	ND	ND	ND	ND	15	µg/L	lbs/d	ND	ND	13

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS (Continued)															
12M. Thallium, Total (7440-28-0)	X			7.32	0.400	7.32	0.400	1.72	0.0831	15	µg/L	lbs/d	0.180	0.0113	13
13M. Zinc, Total (7440-66-6)	X			64.5	2.70	64.5	2.70	11.0	0.519	15	µg/L	lbs/d	7.26	0.394	13
14M. Cyanide, Total (57-12-5)	X			0.00840	0.443	0.00840	0.443	0.00103	0.0507	14	mg/L	lbs/d	0.714	0.0283	14
15M. Phenols, Total	X			0.0500	2.22	0.0500	0.443	0.00357	0.159	14	mg/L	lbs/d	ND	ND	14
DIOXIN															
2,3,7,8 Tetra-chlorodibenzo, P. Dioxin (1784-01-6)			X	DESCRIBE RESULTS:											
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2V. Acrylonitrile (107-13-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3V. Benzene (71-43-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5V. Bromoform (75-25-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6V. Carbon Tetrachlonde (56-23-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7V. Chloro-benzene (108-90-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8V. Chlorodibro-momethane (124-48-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
9V. Chloroethane (74-00-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11V. Chloroform (67-66-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12V. Dichloro-bromomethane (75-71-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14V. 1,1-Dichloroethane (75-34-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15V. 1,2-Dichloroethane (107-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16V. 1,1-Dichlorethylene (75-35-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17V. 1,2-Di-chloropropane (78-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18V. 1,3-Dichloropro-pylene (452-75-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19V. Ethyl-benzene (100-41-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20V. Methyl Bromide (74-83-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
21V. Methyl Chloride (74-87-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22V. Methylene Chloride (75-00-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23V. 1,1,2,2-Tetrachloro-ethane (79-34-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
24V. Tetrachloro-ethylene (127-18-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25V. Toluene (108-88-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26V. 1,2-Trans-Dichloro-ethylene (156-60-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27V. 1,1,1-Tri-chloroethane (71-55-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28V. 1,1,2-Tri-chloroethane (79-00-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29V. Trichloro-ethylene (79-01-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30V. Vinyl Chloride (75-01-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 a. Believed Present	2 b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	3 d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	5 b. No. of Analyses
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chloro-phenol (95-57-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2A. 2,4-Dichlor-Orophenol (120-83-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3A. 2,4-Dimeth-ylphenol (105-67-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4A. 4,6-Dinitro-o-cresol (534-52-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5A. 2,4-Dinitro-phenol (51-28-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6A. 2-Nitro-phenol (88-75-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7A. 4-Nitro-phenol (100-02-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8A. P-chloro-m-cresol (59-50-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9A. Pentachloro-phenol (87-88-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10A. Phenol (108-05-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11A. 2,4,6-Tri-chlorophenol (88-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acena-phthene (83-32-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
2B. Acenaphtylene (208-96-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3B. Anthracene (120-12-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4B. Benzidine (92-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5B. Benzo(a)-anthracene (56-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6B. Benzo(a)-pyrene (50-32-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8B. Benzo(ghi) perylene (191-24-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9B. Benzo(k)-fluoranthene (207-08-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10B. Bis(2-chloroethoxy)-methane (111-91-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11B. Bis (2-chloroisopropyl)-Ether	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12B. Bis (2-ethylhexyl)-phthalate (117-81-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
13B. 4-Bromo-phenyl Phenyl ether (101-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14B. Butyl-benzyl phthalate (85-68-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15B. 2-Chloro-naphthalene (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16B. 4-Chloro-phenyl phenyl ether (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17B. Chrysene (218-01-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18B. Dibenzo-(a,h) Anthracene (53-70-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19B. 1,2-Dichloro-benzene (95-50-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20B. 1,3-Dichloro-Benzene (541-73-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
21B. 1.4-Dichloro-benzene (106-46-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22B. 3,3-Dichloro-benzidene (91-94-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23B. Diethyl Phthalate (84-66-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
24B. Dimethyl Phthalate (131-11-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25B. Di-N-butyl Phthalate (84-74-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26B. 2,4-Dinitro-toluene (121-14-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27B. 2,6-Dinitro-toluene (606-20-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28B. Di-n-octyl Phthalate (117-84-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29B. 1,2-diphenyl-hydrazine (as azonbenzene) (122-66-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30B. Fluoranthene (208-44-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
31B. Fluorene (86-73-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
32B. Hexachloro-benzene (118-71-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
33B. Hexachloro-butadiene (87-68-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
34B. Hexachloro-cyclopenta-diene (77-47-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
35B. Hexachloroethane (67-72-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
36B. Indeno-(1,2,3-oc)-Pyrene (193-39-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
37B. Isophorone (78-59-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
38B. Napthalene (91-20-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
39B. Nitrobenzene (98-95-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
40B. N-Nitrosodimethylamine (62-75-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
41B. N-nitrosodi-n-propylamine (621-64-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
42B. N-nitrosodiphenylamine (86-30-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
43B. Phenanthrene (85-01-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
44B. Pyrene (129-00-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
45B. 1,2,4 Trichlorobenzene (120-82-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (58-89-9)			X												
4P. gamma-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – PESTICIDES															
15P. Endrin Aldehyde (7421-93-4)			X												
16P Heptachlor (76-44-8)			X												
17P. Heptaclor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

V. INTAKE AND EFFLUENT CHARACTERISTICS (Continued from page 3 of Form C)										OUTFALL NO. 005		
Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.												
1 POLLUTANT	2 EFFLUENT						d. No. of Analyses	3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)			a. Concentration	b. Mass	a. Long-Term Avg. Value		b. No of Analyses
	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Biochemical Oxygen Demand (BOD)	2.00	0.934					1	mg/L	lbs/d	48.0	3427	1
b. Chemical Oxygen Demand (COD)	16.0	7.47					1	mg/L	lbs/d	14.0	999	1
c. Total Organic Carbon (TOC)	1.90	0.887					1	mg/L	lbs/d	2.80	200	1
d. Total Suspended Solids (TSS)	28.9	34.0	28.9	34.0	23.9	22.0	3	mg/L	lbs/d	62.8	3299	40
e. Ammonia (as N)	0.600	0.280					1	mg/L	lbs/d	0.0440	3.14	1
f. Flow (in units of MGD)	VALUE 0.141		VALUE 0.141		VALUE 0.108		3	MGD		VALUE 6.47		1154
g. Temperature (winter)	VALUE N/A		VALUE N/A		VALUE N/A		0	°c		VALUE 10.1		601
h. Temperature (summer)	VALUE N/A		VALUE N/A		VALUE N/A		0	°c		VALUE 23.3		549
i. pH	MINIMUM 7.04	MAXIMUM 9.73	MINIMUM 7.04	MAXIMUM 9.73			3	STANDARD UNITS				

Part B - In the MARK "X" column, place an "X" in the Believed Present column for each pollutant you know or have reason to believe is present. Place an "X" in the Believed Absent column for each pollutant you believe to be absent. If you mark the Believed Present column for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		6 INTAKE (optional)		
	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
a. Bromide (24959-67-9)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
b. Chloride	X		30.9	14.4					1	mg/L	lbs/d	23.8	23.8	1
c. Chlorine, Total Residual		X												
d. Color	X		11.0	5.14					1	PCU		15.0		1
e. Fecal Coliform Or E.coli		X										32.0		1
f. Fluoride (16984-48-8)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
g. Hardness (as $CaCO_3$)	X		874	1028	874	1028	582	577	3	mg/L	lbs/d	125	7366	40
h. Nitrate – Nitrite (as N)	X		0.300	0.140					1	mg/L	lbs/d	1.10	78.5	1
i. Nitrogen, Total Organic (as N)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
j. Oil and Grease		X								mg/L	lbs/d			
k. Phosphorous (as P), Total 7723-14-0	X		0.0710	0.0332					1	mg/L	lbs/d	0.0680	4.85	1
l. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium Total		X												
(4) Radium, 226, Total		X												
(5) Strontium-90, Total		X												
(6 Uranium		X												

Part B - Continued

1. POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg. Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg. Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
m. Sulfate (as SO_4) (14808-79-8)	X		266	124					1	mg/L	lbs/d	51.9	3705	1
n. Sulfide (as S)		X												
o. Sulfite (as SO_3) (14286-46-3)		X												
p. Surfactants		X												
q. Aluminum, Total (7429-90)	X	X	273	0.128					1	µg/L	lbs/d	1420	76.7	1
r. Barium, Total (7440-39-3)	X		30.4	0.0142					1	mg/L	lbs/d	61.0	3.30	1
s. Boron, Total (7440-42-8)	X		362	0.169					1	µg/L	lbs/d	39.0	2.11	1
t. Cobalt, Total (7440-48-4)	X		5.30	0.00248					1	µg/L	lbs/d	2.00	0.108	1
u. Iron, Total (7439-89-6)	X		890	0.416					1	µg/L	lbs/d	2292	124	1
v. Magnesium Total (7439-96-4)	X		13252	6.19					1	µg/L	lbs/d	61.0	3.30	1
w. Molybdenum Total (7439-98-7)	X		5.20	0.00243					1	µg/L	lbs/d	ND	ND	1
x. Manganese, Total (7439-96-6)	X		305	0.142					1	µg/L	lbs/d	247	13.3	1
y. Tin, Total (7440-31-5)		X								mg/L	lbs/d			
z. Titanium, Total (7440-32-6)	X		0.0100	0.00467					1	mg/L	lbs/d	0.0140	0.999	1

Part C – If you are a primary industry and this outfall contains process wastewater, refer to Table C-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in the **Testing Required** column for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark this column (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in the **Believed Present** column for each pollutant you know or have reason to believe is present. Mark "X" in the **Believed Absent** column for each pollutant you believe to be absent. If you mark either the **Testing Required** or **Believed Present** columns for any pollutant, you must provide the result of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	X			ND	ND	ND	ND	ND	ND	3	µg/L	lbs/d	ND	ND	13
2M. Arsenic, Total (7440-38-2)	X			8.70	0.00921	8.70	0.00921	3.23	0.00323	3	µg/L	lbs/d	0.877	0.0519	13
3M. Beryllium Total (7440-41-7)	X			6.30	0.00667	6.30	0.00667	2.10	0.00222	3	µg/L	lbs/d	ND	ND	13
4M. Cadmium Total (7440-43-9)	X			0.650	0.000688	0.650	0.000688	0.263	0.000284	3	µg/L	lbs/d	0.0278	0.00141	13
5M. Chromium Total (7440-43-9)	X			ND	ND	ND	ND	ND	ND	3	µg/L	lbs/d	0.920	0.0485	13
6M. Copper Total (7550-50-8)	X			3.60	0.00381	3.60	0.00381	2.43	0.00220	3	µg/L	lbs/d	2.76	0.154	13
7M. Lead Total (7439-92-1)	X			ND	ND	ND	ND	ND	ND	3	µg/L	lbs/d	2.23	0.117	13
8M. Mercury Total (7439-97-6)	X			17.4	0.0000184	17.4	0.0000184	8.67	0.00000951	3	ng/L	lbs/d	1.92	0.000111	13
9M. Nickel, Total (7440-02-0)	X			51.3	0.0543	51.3	0.0543	24.4	0.0243	3	µg/L	lbs/d	3.25	0.179	13
10M. Selenium, Total (7782-49-2)	X			13.8	0.0162	13.8	0.0162	6.90	0.00715	3	µg/L	lbs/d	0.504	0.0304	13
11M. Silver, Total (7440-28-0)	X			ND	ND	ND	ND	ND	ND	3	µg/L	lbs/d	ND	ND	13

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS (Continued)															
12M. Thallium, Total (7440-28-0)	X			1.00	0.00106	1.00	0.00106	0.483	0.000459	3	µg/L	lbs/d	0.180	0.0113	13
13M. Zinc, Total (7440-66-6)	X			125	0.132	125	0.132	51.0	0.0509	3	µg/L	lbs/d	7.26	0.394	13
14M. Cyanide, Total (57-12-5)	X			ND	ND	ND	ND	ND	ND	3	mg/L	lbs/d	0.714	0.0283	14
15M. Phenols, Total	X			ND	ND	ND	ND	ND	ND	3	mg/L	lbs/d	ND	ND	14
DIOXIN															
2,3,7,8 Tetra-chlorodibenzo, P, Dioxin (1784-01-6)			X	DESCRIBE RESULTS: N/A											
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2V. Acrylonitrile (107-13-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3V. Benzene (71-43-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5V. Bromoform (75-25-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6V. Carbon Tetrachloride (56-23-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7V. Chloro-benzene (108-90-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8V. Chlorodibro-momethane (124-48-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
9V. Chloroethane (74-00-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11V. Chloroform (67-66-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12V. Dichloro-bromomethane (75-71-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14V. 1,1-Dichloroethane (75-34-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15V. 1,2-Dichloroethane (107-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16V. 1,1-Dichlorethylene (75-35-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17V. 1,2-Di-chloropropane (78-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18V. 1,3-Dichloropro-pylene (452-75-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19V. Ethyl-benzene (100-41-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20V. Methyl Bromide (74-83-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
21V. Methyl Chloride (74-87-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22V. Methylene Chloride (75-00-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23V. 1,1,2,2-Tetrachloro-ethane (79-34-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
24V. Tetrachloro-ethylene (127-18-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25V. Toluene (108-88-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26V. 1,2-Trans-Dichloro-ethylene (156-60-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27V. 1,1,1-Tri-chloroethane (71-55-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28V. 1,1,2-Tri-chloroethane (79-00-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29V. Trichloro-ethylene (79-01-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30V. Vinyl Chloride (75-01-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chloro-phenol (95-57-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2A. 2,4-Dichlor-Orophenol (120-83-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3A. 2,4-Dimeth-ylphenol (105-67-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4A. 4,6-Dinitro-o-cresol (534-52-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5A. 2,4-Dinitro-phenol (51-28-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6A. 2-Nitro-phenol (88-75-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7A. 4-Nitro-phenol (100-02-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8A. P-chloro-m-cresol (59-50-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9A. Pentachloro-phenol (87-88-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10A. Phenol (108-05-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11A. 2,4,6-Tri-chlorophenol (88-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acena-phthene (83-32-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
2B. Acenaphtylene (208-96-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3B. Anthracene (120-12-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4B. Benzidine (92-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5B. Benzo(a)-anthracene (56-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6B. Benzo(a)-pyrene (50-32-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8B. Benzo(ghi) perylene (191-24-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9B. Benzo(k)-fluoranthene (207-08-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10B. Bis(2-chloroethoxy)-methane (111-91-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11B. Bis (2-chloroisopropyl)-Ether	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12B. Bis (2-ethylhexyl)-phthalate (117-81-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
13B. 4-Bromo-phenyl Phenyl ether (101-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14B. Butyl-benzyl phthalate (85-68-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15B. 2-Chloro-naphthalene (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16B. 4-Chloro-phenyl phenyl ether (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17B. Chrysene (218-01-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18B. Dibenzo-(a,h) Anthracene (53-70-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19B. 1,2-Dichloro-benzene (95-50-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20B. 1,3-Dichloro-Benzene (541-73-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
21B. 1,4-Dichloro-benzene (106-46-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22B. 3,3-Dichloro-benzidene (91-94-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23B. Diethyl Phthalate (84-66-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
24B. Dimethyl Phthalate (131-11-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25B. Di-N-butyl Phthalate (84-74-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26B. 2,4-Dinitro-toluene (121-14-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27B. 2,6-Dinitro-toluene (606-20-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28B. Di-n-octyl Phthalate (117-84-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29B. 1,2-diphenyl-hydrazine (as azonbenzene) (122-66-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30B. Fluoranthene (208-44-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
31B. Fluorene (86-73-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
32B. Hexachloro-benzene (118-71-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
33B. Hexachloro-butadiene (87-68-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
34B. Hexachloro-cyclopenta-diene (77-47-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
35B. Hexachloroethane (67-72-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
36B. Indeno-(1.2.3-oc)-Pyrene (193-39-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
37B. Isophorone (78-59-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
38B. Napthalene (91-20-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
39B. Nitrobenzene (98-95-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
40B. N-Nitrosodimethylamine (62-75-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
41B. N-nitrosodi-n-propylamine (621-64-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
42B. N-nitrosodiphenylamine (86-30-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
43B. Phenanthrene (85-01-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
44B. Pyrene (129-00-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
45B. 1.2.4 Trichlorobenzene (120-82-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (58-89-9)			X												
4P. gamma-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – PESTICIDES															
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												
17P. Heptaclor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

V. INTAKE AND EFFLUENT CHARACTERISTICS (Continued from page 3 of Form C)											OUTFALL NO. 007		
Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.													
1 POLLUTANT	2 EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses		a. Concentration	b. Mass	a. Long-Term Avg. Value		b. No of Analyses
	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass					(1) Concentration	(2) Mass	
a. Biochemical Oxygen Demand (BOD)	38.0	101					1		mg/L	lbs/d	48.0	3427	1
b. Chemical Oxygen Demand (COD)	12.0	32.0					1		mg/L	lbs/d	14.0	999	1
c. Total Organic Carbon (TOC)	3.40	9.07					1		mg/L	lbs/d	2.80	200	1
d. Total Suspended Solids (TSS)	ND	ND					1		mg/L	lbs/d	62.8	3299	40
e. Ammonia (as N)	ND	ND					1		mg/L	lbs/d	0.0440	3.14	1
f. Flow (in units of MGD)	0.320	0.32	VALUE 0.320		VALUE 0.178		15		MGD		VALUE 6.47		1154
g. Temperature (winter)	VALUE 18.3		VALUE 18.3		VALUE 16.7		3		°c		VALUE 10.1		601
h. Temperature (summer)	VALUE 17.8		VALUE 17.8		VALUE 17.2		2		°c		VALUE 23.3		549
i. pH	MINIMUM 7.67	MAXIMUM 8.00	MINIMUM 7.67	MAXIMUM 8.00			15		STANDARD UNITS				

Part B - In the MARK "X" column, place an "X" in the Believed Present column for each pollutant you know or have reason to believe is present. Place an "X" in the Believed Absent column for each pollutant you believe to be absent. If you mark the Believed Present column for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		6 INTAKE (optional)		
	a.	b.	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
	Believed Present	Believed Absent	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Bromide (24959-67-9)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
b. Chloride	X		109	290					1	mg/L	lbs/d	23.8	23.8	1
c. Chlorine, Total Residual		X												
d. Color	X		15.0						1	PCU		15.0		1
e. Fecal Coliform Or E.coli		X										32.0		1
f. Fluoride (16984-48-8)	X		0.660	1.76					1	mg/L	lbs/d	ND	ND	1
g. Hardness (as $CaCO_3$)	X		1479	2920	1479	2920	1115	1529	14	mg/L	lbs/d	125	7366	40
h. Nitrate – Nitrite (as N)	X		1.10	2.94					1	mg/L	lbs/d	1.10	78.5	1
i. Nitrogen, Total Organic (as N)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
j. Oil and Grease		X								mg/L	lbs/d			
k. Phosphorous (as P), Total 7723-14-0	X		0.370	0.987					1	mg/L	lbs/d	0.0680	4.85	1
l. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium Total		X												
(4) Radium, 226, Total		X												
(5) Strontium-90, Total		X												
(6 Uranium		X												

Part B - Continued

1. POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg. Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg. Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
m. Sulfate (as SO_4) (14808-79-8)	X		243	650					1	mg/L	lbs/d	51.9	3705	1
n. Sulfide (as S)		X												
o. Sulfite (as SO_4) (14286-46-3)		X												
p. Surfactants		X												
q. Aluminum, Total (7429-90)	X		ND	ND					1	µg/L	lbs/d	1420	76.7	1
r. Barium, Total (7440-39-3)	X		121	0.212					1	µg/L	lbs/d	61.0	3.30	1
s. Boron, Total (7440-42-8)	X		266	0.466					1	µg/L	lbs/d	39.0	2.11	1
t. Cobalt, Total (7440-48-4)	X		ND	ND					1	µg/L	lbs/d	2.00	0.108	1
u. Iron, Total (7439-89-6)	X		ND	ND					1	µg/L	lbs/d	2292	124	1
v. Magnesium Total (7439-96-4)	X		41857	73.3					1	µg/L	lbs/d	61.0	3.30	1
w. Molybdenum Total (7439-98-7)	X		20.0	0.0350					1	µg/L	lbs/d	ND	ND	1
x. Manganese, Total (7439-96-6)	X		7.00	0.0123					1	µg/L	lbs/d	247	13.3	1
y. Tin, Total (7440-31-5)		X												
z. Titanium, Total (7440-32-6)	X		ND	ND					1	mg/L	lbs/d	0.0140	0.999	1

Part C – If you are a primary industry and this outfall contains process wastewater, refer to Table C-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in the **Testing Required** column for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark this column (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in the **Believed Present** column for each pollutant you know or have reason to believe is present. Mark "X" in the **Believed Absent** column for each pollutant you believe to be absent. If you mark either the **Testing Required** or **Believed Present** columns for any pollutant, you must provide the result of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
METALS, CYANIDE AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	X			1.20	0.000300	1.20	0.000300	0.0923	0.0000231	13	µg/L	lbs/d	ND	ND	13
2M. Arsenic, Total (7440-38-2)	X			15.2	0.00518	15.2	0.00518	1.98	0.00155	13	µg/L	lbs/d	0.877	0.0519	13
3M. Beryllium Total (7440-41-7)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	ND	ND	13
4M. Cadmium Total (7440-43-9)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	0.0278	0.00141	13
5M. Chromium Total (7440-43-9)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	0.920	0.0485	13
6M. Copper Total (7550-50-8)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	2.76	0.154	13
7M. Lead Total (7439-92-1)	X			1.21	0.00232	1.21	0.00232	0.0931	0.000179	13	µg/L	lbs/d	2.23	0.117	13
8M. Mercury Total (7439-97-6)	X			ND	ND	ND	ND	ND	ND	13	ng/L	lbs/d	1.92	0.000111	13
9M. Nickel, Total (7440-02-0)	X			7.10	0.00280	7.10	0.00280	0.798	0.000708	13	µg/L	lbs/d	3.25	0.179	13
10M. Selenium, Total (7782-49-2)	X			2.34	0.00449	2.34	0.00449	0.928	0.00115	13	µg/L	lbs/d	0.504	0.0304	13
11M. Silver, Total (7440-28-0)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	ND	ND	13

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS (Continued)															
12M. Thallium, Total (7440-28-0)	X			1.60	0.00194	1.60	0.00194	0.282	0.000366	13	µg/L	lbs/d	0.180	0.0113	13
13M. Zinc, Total (7440-66-6)	X			18.3	0.0321	18.3	0.0321	1.41	0.00247	13	µg/L	lbs/d	7.26	0.394	13
14M. Cyanide, Total (57-12-5)	X			0.0300	0.0400	0.0300	0.0400	0.00214	0.00286	14	mg/L	lbs/d	0.714	0.0283	14
15M. Phenols, Total	X			ND	ND	ND	ND	ND	ND	14	mg/L	lbs/d	ND	ND	14
DIOXIN															
2,3,7,8 Tetra-chlorodibenzo, P, Dioxin (1784-01-6)			X	DESCRIBE RESULTS:											
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2V. Acrylonitrile (107-13-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3V. Benzene (71-43-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5V. Bromoform (75-25-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6V. Carbon Tetrachloride (56-23-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7V. Chloro-benzene (108-90-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8V. Chlorodibro-momethane (124-48-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
9V. Chloroethane (74-00-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11V. Chloroform (67-66-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12V. Dichloro-bromomethane (75-71-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14V. 1,1-Dichloroethane (75-34-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15V. 1,2-Dichloroethane (107-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16V. 1,1-Dichlorethylene (75-35-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17V. 1,2-Di-chloropropane (78-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18V. 1,3-Dichloropro-pylene (452-75-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19V. Ethyl-benzene (100-41-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20V. Methyl Bromide (74-83-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
21V. Methyl Chloride (74-87-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22V. Methylene Chloride (75-00-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23V. 1,1,2,2-Tetrachloro-ethane (79-34-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
24V. Tetrachloro-ethylene (127-18-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25V. Toluene (108-88-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26V. 1,2-Trans-Dichloro-ethylene (156-60-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27V. 1,1,1-Tri-chloroethane (71-55-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28V. 1,1,2-Tri-chloroethane (79-00-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29V. Trichloro-ethylene (79-01-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30V. Vinyl Chloride (75-01-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chloro-phenol (95-57-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2A. 2.4-Dichlor-Orophenol (120-83-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3A. 2.4-Dimeth-ylphenol (105-67-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4A. 4.6-Dinitro-o-cresol (534-52-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5A. 2.4-Dinitro-phenol (51-28-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6A. 2-Nitro-phenol (88-75-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7A. 4-Nitro-phenol (100-02-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8A. P-chloro-m-cresol (59-50-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9A. Pentachloro-phenol (87-88-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10A. Phenol (108-05-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11A. 2.4.6-Tri-chlorophenol (88-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acena-phthene (83-32-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
2B. Acenaphtylene (208-96-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3B. Anthracene (120-12-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4B. Benzidine (92-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5B. Benzo(a)-anthracene (56-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6B. Benzo(a)-pyrene (50-32-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8B. Benzo(ghi) perylene (191-24-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9B. Benzo(k)-fluoranthene (207-08-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10B. Bis(2-chloroethoxy)-methane (111-91-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11B. Bis (2-chloroisopropyl)-Ether	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12B. Bis (2-ethylhexyl)-phthalate (117-81-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
13B. 4-Bromo-phenyl Phenyl ether (101-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14B. Butyl-benzyl phthalate (85-68-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15B. 2-Chloro-naphthalene (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16B. 4-Chloro-phenyl phenyl ether (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17B. Chrysene (218-01-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18B. Dibenzo-(a,h) Anthracene (53-70-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19B. 1,2-Dichloro-benzene (95-50-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20B. 1,3-Dichloro-Benzene (541-73-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
21B. 1,4-Dichloro-benzene (106-46-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22B. 3,3-Dichloro-benzidene (91-94-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23B. Diethyl Phthalate (84-66-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
24B. Dimethyl Phthalate (131-11-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25B. Di-N-butyl Phthalate (84-74-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26B. 2.4-Dinitro-toluene (121-14-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27B. 2.6-Dinitro-toluene (606-20-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28B. Di-n-octyl Phthalate (117-84-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29B. 1,2-diphenyl-hydrazine (as azonbenzene) (122-66-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30B. Fluoranthene (208-44-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
31B. Fluorene (86-73-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
32B. Hexachloro-benzene (118-71-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
33B. Hexachloro-butadiene (87-68-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
34B. Hexachloro-cyclopenta-diene (77-47-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
35B. Hexachloroethane (67-72-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
36B. Indeno-(1,2,3-cd)-Pyrene (193-39-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
37B. Isophorone (78-59-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
38B. Napthalene (91-20-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
39B. Nitrobenzene (98-95-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
40B. N-Nitrosodimethylamine (62-75-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
41B. N-nitrosodi-n-propylamine (621-64-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
42B. N-nitrosodiphenylamine (86-30-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
43B. Phenanthrene (85-01-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
44B. Pyrene (129-00-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
45B. 1,2,4 Trichlorobenzene (120-82-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (58-89-9)			X												
4P. gamma-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – PESTICIDES															
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												
17P. Heptaclor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

V. INTAKE AND EFFLUENT CHARACTERISTICS (Continued from page 3 of Form C)										OUTFALL NO. 008		
Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.												
1 POLLUTANT	2 EFFLUENT						d. No. of Analyses	3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)			a. Concentration	b. Mass	a. Long-Term Avg. Value		b. No of Analyses
	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Biochemical Oxygen Demand (BOD)	2.00	0.684					1	mg/L	lbs/d	48.0	3427	1
b. Chemical Oxygen Demand (COD)	6.20	2.12					1	mg/L	lbs/d	14.0	999	1
c. Total Organic Carbon (TOC)	3.40	1.16					1	mg/L	lbs/d	2.80	200	1
d. Total Suspended Solids (TSS)	45200	324946	45200	324946	2573	14387	24	mg/L	lbs/d	62.8	3299	40
e. Ammonia (as N)	0.0600	0.0205					1	mg/L	lbs/d	0.0440	3.14	1
f. Flow (in units of MGD)	VALUE 0.862		VALUE 0.862		VALUE 0.215		22	MGD		VALUE 6.47		1154
g. Temperature (winter)	VALUE N/A		VALUE N/A		VALUE N/A		0	°c		VALUE 10.1		601
h. Temperature (summer)	VALUE N/A		VALUE N/A		VALUE N/A		0	°c		VALUE 23.3		549
i. pH	MINIMUM 7.90	MAXIMUM 11.68	MINIMUM 7.90	MAXIMUM 11.68			25	STANDARD UNITS				

Part B - In the MARK "X" column, place an "X" in the Believed Present column for each pollutant you know or have reason to believe is present. Place an "X" in the Believed Absent column for each pollutant you believe to be absent. If you mark the Believed Present column for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		6 INTAKE (optional)		
	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
a. Bromide (24959-67-9)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
b. Chloride	X		14.9	5.09					1	mg/L	lbs/d	23.8	23.8	1
c. Chlorine, Total Residual		X												
d. Color	X		12.0						1	PCU		15.0		1
e. Fecal Coliform Or E.coli	X		12.0						1	col/100mL		32.0		1
f. Fluoride (16984-48-8)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
g. Hardness (as $CaCO_3$)	X		1348	2065	1348	2065	840	879	14	mg/L	lbs/d	125	7366	40
h. Nitrate - Nitrite (as N)	X		1.60	0.547					1	mg/L	lbs/d	1.10	78.5	1
i. Nitrogen, Total Organic (as N)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
j. Oil and Grease		0								mg/L	lbs/d			
k. Phosphorous (as P), Total 7723-14-0	X		0.0530	0.0181					1	mg/L	lbs/d	0.0680	4.85	1
l. Radioactivity														
(1) Alpha, Total	X		1.42						1	pCi/L				
(2) Beta, Total	X		17.8						1	pCi/L				
(3) Radium Total	X		ND						1	pCi/L				
(4) Radium, 226, Total	X		ND						1	pCi/L				
(5) Strontium-90, Total		X												
(6 Uranium		X												

Part B - Continued

1. POLLUTANT And CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg. Value (1) Concentration	a. Long-Term Avg. Value (2) Mass	b. No. of Analyses
m. Sulfate (as SO_4) (14808-79-8)	X		906	310					1	mg/L	lbs/d	51.9	3705	1
n. Sulfide (as S)		X												
o. Sulfite (as SO_4) (14286-46-3)		X												
p. Surfactants		X												
q. Aluminum, Total (7429-90)	X	X	137	0.125					1	µg/L	lbs/d	1420	76.7	1
r. Barium, Total (7440-39-3)	X		36.9	0.0339					1	µg/L	lbs/d	61.0	3.30	1
s. Boron, Total (7440-42-8)	X		4090	3.75					1	µg/L	lbs/d	39.0	2.11	1
t. Cobalt, Total (7440-48-4)	X		ND	ND					1	µg/L	lbs/d	2.00	0.108	1
u. Iron, Total (7439-89-6)	X		137	0.125					1	µg/L	lbs/d	2292	124	1
v. Magnesium Total (7439-96-4)	X		13040	12.0					1	µg/L	lbs/d	61.0	3.30	1
w. Molybdenum Total (7439-98-7)	X		1166	1.07					1	µg/L	lbs/d	ND	ND	1
x. Manganese, Total (7439-96-6)	X		70.8	0.0650					1	µg/L	lbs/d	247	13.3	1
y. Tin, Total (7440-31-5)		X												
z. Titanium, Total (7440-32-6)	X		0.00790	0.00270					1	mg/L	lbs/d	0.0140	0.999	1

Part C – If you are a primary industry and this outfall contains process wastewater, refer to Table C-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in the **Testing Required** column for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark this column (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in the **Believed Present** column for each pollutant you know or have reason to believe is present. Mark "X" in the **Believed Absent** column for each pollutant you believe to be absent. If you mark either the **Testing Required** or **Believed Present** columns for any pollutant, you must provide the result of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
METALS, CYANIDE AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	X			1.80	0.00300	1.80	0.00300	0.318	0.000393	14	µg/L	lbs/d	ND	ND	13
2M. Arsenic, Total (7440-38-2)	X			37.9	0.0383	37.9	0.0383	11.8	0.0134	14	µg/L	lbs/d	0.877	0.0519	13
3M. Beryllium Total (7440-41-7)	X			ND	ND	ND	ND	ND	ND	14	µg/L	lbs/d	ND	ND	13
4M. Cadmium Total (7440-43-9)	X			1.00	0.000807	1.00	0.000807	0.389	0.000363	14	µg/L	lbs/d	0.0278	0.00141	13
5M. Chromium Total (7440-43-9)	X			4.30	0.00717	4.30	0.00717	0.960	0.00133	14	µg/L	lbs/d	0.920	0.0485	13
6M. Copper Total (7550-50-8)	X			1.90	0.00317	1.90	0.00317	0.209	0.000342	14	µg/L	lbs/d	2.76	0.154	13
7M. Lead Total (7439-92-1)	X			1.10	0.00110	1.10	0.00110	0.0786	0.0000786	14	µg/L	lbs/d	2.23	0.117	13
8M. Mercury Total (7439-97-6)	X			20.3	0.0000320	20.3	0.0000320	2.36	0.00000345	14	ng/L	lbs/d	1.92	0.000111	13
9M. Nickel, Total (7440-02-0)	X			1.10	0.00193	1.10	0.00193	0.0786	0.000138	14	µg/L	lbs/d	3.25	0.179	13
10M. Selenium, Total (7782-49-2)	X			10.1	0.0168	10.1	0.0168	4.90	0.00529	14	µg/L	lbs/d	0.504	0.0304	13
11M. Silver, Total (7440-28-0)	X			ND	ND	ND	ND	ND	ND	14	µg/L	lbs/d	ND	ND	13

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS (Continued)															
12M. Thallium, Total (7440-28-0)	X			1.50	0.00112	1.50	0.00112	0.480	0.000442	14	µg/L	lbs/d	0.180	0.0113	13
13M. Zinc, Total (7440-66-6)	X			20.7	0.00932	20.7	0.00932	1.48	0.000666	14	µg/L	lbs/d	7.26	0.394	13
14M. Cyanide, Total (57-12-5)	X			ND	ND	ND	ND	ND	ND	14	mg/L	lbs/d	0.714	0.0283	14
15M. Phenols, Total	X			ND	ND	ND	ND	ND	ND	14	mg/L	lbs/d	ND	ND	14
DIOXIN															
2,3,7,8 Tetra-chlorodibenzo, P. Dioxin (1784-01-6)			X	DESCRIBE RESULTS:											
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2V. Acrylonitrile (107-13-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3V. Benzene (71-43-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5V. Bromoform (75-25-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6V. Carbon Tetrachloride (56-23-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7V. Chloro-benzene (108-90-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8V. Chlorodibro-momethane (124-48-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
9V. Chloroethane (74-00-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11V. Chloroform (67-66-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12V. Dichloro-bromomethane (75-71-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14V. 1,1-Dichloroethane (75-34-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15V. 1,2-Dichloroethane (107-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16V. 1,1-Dichlorethylene (75-35-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17V. 1,2-Di-chloropropane (78-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18V. 1,3-Dichloropro-pylene (452-75-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19V. Ethyl-benzene (100-41-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20V. Methyl Bromide (74-83-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
21V. Methyl Chloride (74-87-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22V. Methylene Chloride (75-00-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23V. 1,1,2,2-Tetrachloro-ethane (79-34-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
24V. Tetrachloro-ethylene (127-18-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25V. Toluene (108-88-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26V. 1,2-Trans-Dichloro-ethylene (156-60-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27V. 1,1,1-Tri-chloroethane (71-55-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28V. 1,1,2-Tri-chloroethane (79-00-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29V. Trichloro-ethylene (79-01-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30V. Vinyl Chloride (75-01-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chloro-phenol (95-57-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2A. 2,4-Dichlor-Orophenol (120-83-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3A. 2,4-Dimeth-ylphenol (105-67-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4A. 4,6-Dinitro-o-cresol (534-52-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5A. 2,4-Dinitro-phenol (51-28-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6A. 2-Nitro-phenol (88-75-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7A. 4-Nitro-phenol (100-02-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8A. P-chloro-m-cresol (59-50-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9A. Pentachloro-phenol (87-88-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10A. Phenol (108-05-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11A. 2,4,6-Tri-chlorophenol (88-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acena-phthene (83-32-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
2B. Acenaphtylene (208-96-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3B. Anthracene (120-12-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4B. Benzidine (92-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5B. Benzo(a)-anthracene (56-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6B. Benzo(a)-pyrene (50-32-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8B. Benzo(ghi) perylene (191-24-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9B. Benzo(k)-fluoranthene (207-08-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10B. Bis(2-chloroethoxy)-methane (111-91-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11B. Bis (2-chloroisopropyl)-Ether	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12B. Bis (2-ethylhexyl)-phthalate (117-81-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
13B. 4-Bromo-phenyl Phenyl ether (101-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14B. Butyl-benzyl phthalate (85-68-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15B. 2-Chloro-naphthalene (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16B. 4-Chloro-phenyl phenyl ether (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17B. Chrysene (218-01-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18B. Dibenzo-(a,h) Anthracene (53-70-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19B. 1,2-Dichloro-benzene (95-50-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20B. 1,3-Dichloro-Benzene (541-73-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
21B. 1,4-Dichloro-benzene (106-46-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22B. 3,3-Dichloro-benzidene (91-94-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23B. Diethyl Phthalate (84-66-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
24B. Dimethyl Phthalate (131-11-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25B. Di-N-butyl Phthalate (84-74-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26B. 2,4-Dinitro-toluene (121-14-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27B. 2,6-Dinitro-toluene (606-20-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28B. Di-n-octyl Phthalate (117-84-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29B. 1,2-diphenyl-hydrazine (as azonbenzene) (122-66-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30B. Fluoranthene (208-44-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
31B. Fluorene (86-73-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
32B. Hexachloro-benzene (118-71-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
33B. Hexachloro-butadiene (87-68-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
34B. Hexachloro-cyclopenta-diene (77-47-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
35B. Hexachloroethane (67-72-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
36B. Indneo-(1,2,3-oc)-Pyrene (193-39-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
37B. Isophorone (78-59-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
38B. Napthalene (91-20-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
39B. Nitrobenzene (98-95-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
40B. N-Nitrosodimethylamine (62-75-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
41B. N-nitrosodi-n-propylamine (621-64-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
42B. N-nitrosodiphenylamine (86-30-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
43B. Phenanthrene (85-01-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
44B. Pyrene (129-00-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
45B. 1,2,4 Trichlorobenzene (120-82-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (58-89-9)			X												
4P. gamma-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – PESTICIDES															
15P. Endrin Aldehyde (7421-93-4)			X												
16P Heptachlor (76-44-8)			X												
17P. Heptaclor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

V. INTAKE AND EFFLUENT CHARACTERISTICS (Continued from page 3 of Form C)										OUTFALL NO. 009		
Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.												
1 POLLUTANT	2 EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg. Value		b. No of Analyses
	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Biochemical Oxygen Demand (BOD)	48.0	3427					1	mg/L	lbs/d			
b. Chemical Oxygen Demand (COD)	14.0	999					1	mg/L	lbs/d			
c. Total Organic Carbon (TOC)	2.80	200					1	mg/L	lbs/d			
d. Total Suspended Solids (TSS)	325	16046	325	16046	62.8	3299	40	mg/L	lbs/d			
e. Ammonia (as N)	0.0440	3.14					1	mg/L	lbs/d			
f. Flow (in units of MGD)	VALUE 12.2		VALUE 12.2		VALUE 6.47		1154	MGD		VALUE		
g. Temperature (winter)	VALUE 26.1		VALUE 22.3		VALUE 10.1		601	°c		VALUE		
h. Temperature (summer)	VALUE 31.7		VALUE 30.1		VALUE 23.3		549	°c		VALUE		
i. pH	MINIMUM 7.50	MAXIMUM 7.99	MINIMUM 7.50	MAXIMUM 7.99			41	STANDARD UNITS				

Part B - In the MARK "X" column, place an "X" in the Believed Present column for each pollutant you know or have reason to believe is present. Place an "X" in the Believed Absent column for each pollutant you believe to be absent. If you mark the Believed Present column for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		6 INTAKE (optional)		
	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
a. Bromide (24959-67-9)	X		ND	ND					1	mg/L	lbs/d			
b. Chloride	X		23.8	1699					1	mg/L	lbs/d			
c. Chlorine, Total Residual		X												
d. Color	X		15.0						1	PCU				
e. Fecal Coliform Or E.coli	X		32.0						1	col/100mL				
f. Fluoride (16984-48-8)	X		ND	ND					1	mg/L	lbs/d			
g. Hardness (as $CaCO_3$)	X		195	14975	195	14975	125	7366	40	mg/L	lbs/d			
h. Nitrate - Nitrite (as N)	X		1.10	78.5					1	mg/L	lbs/d			
i. Nitrogen, Total Organic (as N)	X		ND	ND					1	mg/L	lbs/d			
j. Oil and Grease		0												
k. Phosphorous (as P), Total 7723-14-0	X		0.0680	4.85					1	mg/L	lbs/d			
l. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium Total		X												
(4) Radium, 226, Total		X												
(5) Strontium-90, Total		X												
(6 Uranium		X												

Part B - Continued

1. POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg. Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg. Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
m. Sulfate (as SO_4) (14808-79-8)	X		52	3705					1	mg/L	lbs/d			
n. Sulfide (as S)		X												
o. Sulfite (as SO_4) (14286-46-3)		X												
p. Surfactants		X												
q. Aluminum, Total (7429-90)	X	X	1420	76.7					1	µg/L	lbs/d			
r. Barium, Total (7440-39-3)	X		61.0	3.30					1	µg/L	lbs/d			
s. Boron, Total (7440-42-8)	X		39.0	2.11					1	µg/L	lbs/d			
t. Cobalt, Total (7440-48-4)	X		2.00	0.108					1	µg/L	lbs/d			
u. Iron, Total (7439-89-6)	X		2292	124					1	µg/L	lbs/d			
v. Magnesium Total (7439-96-4)	X		61.0	3.30					1	µg/L	lbs/d			
w. Molybdenum Total (7439-98-7)	X		ND	ND					1	µg/L	lbs/d			
x. Manganese, Total (7439-96-6)	X		247	13.3					1	µg/L	lbs/d			
y. Tin, Total (7440-31-5)		X												
z. Titanium, Total (7440-32-6)	X		0.0140	0.999					1	mg/L	lbs/d			

Part C – If you are a primary industry and this outfall contains process wastewater, refer to Table C-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in the **Testing Required** column for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark this column (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in the **Believed Present** column for each pollutant you know or have reason to believe is present. Mark "X" in the **Believed Absent** column for each pollutant you believe to be absent. If you mark either the **Testing Required** or **Believed Present** columns for any pollutant, you must provide the result of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d			
2M. Arsenic, Total (7440-38-2)	X			1.70	0.144	1.70	0.144	0.877	0.0519	13	µg/L	lbs/d			
3M. Beryllium Total (7440-41-7)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d			
4M. Cadmium Total (7440-43-9)	X			0.164	0.00956	0.164	0.00956	0.0278	0.00141	13	µg/L	lbs/d			
5M. Chromium Total (7440-43-9)	X			2.08	0.141	2.08	0.141	0.920	0.0485	13	µg/L	lbs/d			
6M. Copper Total (7550-50-8)	X			4.80	0.267	4.80	0.267	2.76	0.154	13	µg/L	lbs/d			
7M. Lead Total (7439-92-1)	X			5.88	0.343	5.88	0.343	2.23	0.117	13	µg/L	lbs/d			
8M. Mercury Total (7439-97-6)	X			13.0	0.000758	13.0	0.000758	1.92	0.000111	13	ng/L	lbs/d			
9M. Nickel, Total (7440-02-0)	X			5.40	0.322	5.40	0.322	3.25	0.179	13	µg/L	lbs/d			
10M. Selenium, Total (7782-49-2)	X			2.80	0.220	2.80	0.220	0.504	0.0304	13	µg/L	lbs/d			
11M. Silver, Total (7440-28-0)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS (Continued)															
12M. Thallium, Total (7440-28-0)	X			1.10	0.0628	1.10	0.0628	0.180	0.0113	13	µg/L	lbs/d			
13M. Zinc, Total (7440-66-6)	X			18.1	1.27	18.1	1.27	7.26	0.394	13	µg/L	lbs/d			
14M. Cyanide, Total (57-12-5)	X			10.0	0.396	10.0	0.396	0.714	0.0283	14	mg/L	lbs/d			
15M. Phenols, Total	X			ND	ND	ND	ND	ND	ND	14	mg/L	lbs/d			
DIOXIN															
2,3,7,8 Tetra-chlorodibenzo, P, Dioxin (1784-01-6)			X	DESCRIBE RESULTS:											
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			ND	ND					1	µg/L	lb/d			
2V. Acrylonitrile (107-13-1)	X			ND	ND					1	µg/L	lb/d			
3V. Benzene (71-43-2)	X			ND	ND					1	µg/L	lb/d			
5V. Bromoform (75-25-2)	X			ND	ND					1	µg/L	lb/d			
6V. Carbon Tetrachloride (56-23-5)	X			ND	ND					1	µg/L	lb/d			
7V. Chloro-benzene (108-90-7)	X			ND	ND					1	µg/L	lb/d			
8V. Chlorodibro-momethane (124-48-1)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
9V. Chloroethane (74-00-3)	X			ND	ND					1	µg/L	lb/d			
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	X			ND	ND					1	µg/L	lb/d			
11V. Chloroform (67-66-3)	X			ND	ND					1	µg/L	lb/d			
12V. Dichloro-bromomethane (75-71-8)	X			ND	ND					1	µg/L	lb/d			
14V. 1,1-Dichloroethane (75-34-3)	X			ND	ND					1	µg/L	lb/d			
15V. 1,2-Dichloroethane (107-06-2)	X			ND	ND					1	µg/L	lb/d			
16V. 1,1-Dichlorethylene (75-35-4)	X			ND	ND					1	µg/L	lb/d			
17V. 1,2-Di-chloropropane (78-87-5)	X			ND	ND					1	µg/L	lb/d			
18V. 1,3-Dichloropro-pylene (452-75-6)	X			ND	ND					1	µg/L	lb/d			
19V. Ethyl-benzene (100-41-4)	X			ND	ND					1	µg/L	lb/d			
20V. Methyl Bromide (74-83-9)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
21V. Methyl Chloride (74-87-3)	X			ND	ND					1	µg/L	lb/d			
22V. Methylene Chloride (75-00-2)	X			ND	ND					1	µg/L	lb/d			
23V. 1,1,2,2-Tetrachloro-ethane (79-34-5)	X			ND	ND					1	µg/L	lb/d			
24V. Tetrachloro-ethylene (127-18-4)	X			ND	ND					1	µg/L	lb/d			
25V. Toluene (108-88-3)	X			ND	ND					1	µg/L	lb/d			
26V. 1,2-Trans-Dichloro-ethylene (156-60-5)	X			ND	ND					1	µg/L	lb/d			
27V. 1,1,1-Tri-chloroethane (71-55-6)	X			ND	ND					1	µg/L	lb/d			
28V. 1,1,2-Tri-chloroethane (79-00-5)	X			ND	ND					1	µg/L	lb/d			
29V. Trichloro-ethylene (79-01-6)	X			ND	ND					1	µg/L	lb/d			
30V. Vinyl Chloride (75-01-4)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chloro-phenol (95-57-8)	X			ND	ND					1	µg/L	lb/d			
2A. 2,4-Dichlor-Orophenol (120-83-2)	X			ND	ND					1	µg/L	lb/d			
3A. 2,4-Dimeth-ylphenol (105-67-9)	X			ND	ND					1	µg/L	lb/d			
4A. 4,6-Dinitro-o-cresol (534-52-1)	X			ND	ND					1	µg/L	lb/d			
5A. 2,4-Dinitro-phenol (51-28-5)	X			ND	ND					1	µg/L	lb/d			
6A. 2-Nitro-phenol (88-75-5)	X			ND	ND					1	µg/L	lb/d			
7A. 4-Nitro-phenol (100-02-7)	X			ND	ND					1	µg/L	lb/d			
8A. P-chloro-m-cresol (59-50-7)	X			ND	ND					1	µg/L	lb/d			
9A. Pentachloro-phenol (87-88-5)	X			ND	ND					1	µg/L	lb/d			
10A. Phenol (108-05-2)	X			ND	ND					1	µg/L	lb/d			
11A. 2,4,6-Tri-chlorophenol (88-06-2)	X			ND	ND					1	µg/L	lb/d			
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acena-phthene (83-32-9)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
2B. Acenaphtylene (208-96-8)	X			ND	ND					1	µg/L	lb/d			
3B. Anthracene (120-12-7)	X			ND	ND					1	µg/L	lb/d			
4B. Benzidine (92-87-5)	X			ND	ND					1	µg/L	lb/d			
5B. Benzo(a)-anthracene (56-55-3)	X			ND	ND					1	µg/L	lb/d			
6B. Benzo(a)-pyrene (50-32-8)	X			ND	ND					1	µg/L	lb/d			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			ND	ND					1	µg/L	lb/d			
8B. Benzo(ghi) perylene (191-24-2)	X			ND	ND					1	µg/L	lb/d			
9B. Benzo(k)-fluoranthene (207-08-9)	X			ND	ND					1	µg/L	lb/d			
10B. Bis(2-chloroethoxy)-methane (111-91-1)	X			ND	ND					1	µg/L	lb/d			
11B. Bis (2-chloroisopropyl)-Ether	X			ND	ND					1	µg/L	lb/d			
12B. Bis (2-ethylhexyl)-phthalate (117-81-7)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
13B. 4-Bromo-phenyl Phenyl ether (101-55-3)	X			ND	ND					1	µg/L	lb/d			
14B. Butyl-benzyl phthalate (85-68-7)	X			ND	ND					1	µg/L	lb/d			
15B. 2-Chloro-naphthalene (7005-72-3)	X			ND	ND					1	µg/L	lb/d			
16B. 4-Chloro-phenyl phenyl ether (7005-72-3)	X			ND	ND					1	µg/L	lb/d			
17B. Chrysene (218-01-9)	X			ND	ND					1	µg/L	lb/d			
18B. Dibenzo-(a,h) Anthracene (53-70-3)	X			ND	ND					1	µg/L	lb/d			
19B. 1,2-Dichloro-benzene (95-50-1)	X			ND	ND					1	µg/L	lb/d			
20B. 1,3-Dichloro-Benzene (541-73-1)	X			ND	ND					1	µg/L	lb/d			
21B. 1,4-Dichloro-benzene (106-46-7)	X			ND	ND					1	µg/L	lb/d			
22B. 3,3-Dichloro-benzidene (91-94-1)	X			ND	ND					1	µg/L	lb/d			
23B. Diethyl Phthalate (84-66-2)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
24B. Dimethyl Phthalate (131-11-3)	X			ND	ND					1	µg/L	lb/d			
25B. Di-N-butyl Phthalate (84-74-2)	X			ND	ND					1	µg/L	lb/d			
26B. 2,4-Dinitro-toluene (121-14-2)	X			ND	ND					1	µg/L	lb/d			
27B. 2,6-Dinitro-toluene (606-20-2)	X			ND	ND					1	µg/L	lb/d			
28B. Di-n-octyl Phthalate (117-84-0)	X			ND	ND					1	µg/L	lb/d			
29B. 1,2-diphenyl-hydrazine (as azonbenzene) (122-66-7)	X			ND	ND					1	µg/L	lb/d			
30B. Fluoranthene (208-44-0)	X			ND	ND					1	µg/L	lb/d			
31B. Fluorene (86-73-7)	X			ND	ND					1	µg/L	lb/d			
32B. Hexachloro-benzene (118-71-1)	X			ND	ND					1	µg/L	lb/d			
33B. Hexachloro-butadiene (87-68-3)	X			ND	ND					1	µg/L	lb/d			
34B. Hexachloro-cyclopenta-diene (77-47-4)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
35B. Hexachloroethane (67-72-1)	X			ND	ND					1	µg/L	lb/d			
36B. Indeno-(1,2,3-cd)-Pyrene (193-39-5)	X			ND	ND					1	µg/L	lb/d			
37B. Isophorone (78-59-1)	X			ND	ND					1	µg/L	lb/d			
38B. Napthalene (91-20-3)	X			ND	ND					1	µg/L	lb/d			
39B. Nitrobenzene (98-95-3)	X			ND	ND					1	µg/L	lb/d			
40B. N-Nitrosodimethylamine (62-75-9)	X			ND	ND					1	µg/L	lb/d			
41B. N-nitrosodi-n-propylamine (621-64-7)	X			ND	ND					1	µg/L	lb/d			
42B. N-nitrosodiphenylamine (86-30-6)	X			ND	ND					1	µg/L	lb/d			
43B. Phenanthrene (85-01-8)	X			ND	ND					1	µg/L	lb/d			
44B. Pyrene (129-00-0)	X			ND	ND					1	µg/L	lb/d			
45B. 1,2,4 Trichlorobenzene (120-82-1)	X			ND	ND					1	µg/L	lb/d			

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (58-89-9)			X												
4P. gamma-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – PESTICIDES															
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												
17P. Heptaclor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

V. INTAKE AND EFFLUENT CHARACTERISTICS (Continued from page 3 of Form C)										OUTFALL NO. 011		
Part A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.												
1 POLLUTANT	2 EFFLUENT						d. No. of Analyses	3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)			a. Concentration	b. Mass	a. Long-Term Avg. Value		b. No of Analyses
	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
a. Biochemical Oxygen Demand (BOD)	2.00	0.417					1	mg/L	lbs/d	48.0	3427	1
b. Chemical Oxygen Demand (COD)	9.10	1.90					1	mg/L	lbs/d	14.0	999	1
c. Total Organic Carbon (TOC)	3.40	0.709					1	mg/L	lbs/d	2.80	200	1
d. Total Suspended Solids (TSS)	26.8	10.2	26.8	10.2	10.6	2.28	14	mg/L	lbs/d	62.8	3299	40
e. Ammonia (as N)	ND	ND					1	mg/L	lbs/d	0.0440	3.14	1
f. Flow (in units of MGD)	VALUE 0.0600		VALUE 0.0600		VALUE 0.0231		15	MGD		VALUE 6.47		1154
g. Temperature (winter)	VALUE N/A		VALUE N/A		VALUE N/A		0	°c		VALUE 10.1		601
h. Temperature (summer)	VALUE N/A		VALUE N/A		VALUE N/A		0	°c		VALUE 23.3		549
i. pH	MINIMUM 7.82	MAXIMUM 8.87	MINIMUM 7.82	MAXIMUM 8.87			15	STANDARD UNITS				

Part B - In the MARK "X" column, place an "X" in the Believed Present column for each pollutant you know or have reason to believe is present. Place an "X" in the Believed Absent column for each pollutant you believe to be absent. If you mark the Believed Present column for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		6 INTAKE (optional)		
	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value (1) Concentration	a. Long-Term Avg Value (2) Mass	b. No. of Analyses
a. Bromide (24959-67-9)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
b. Chloride	X		27.5	5.73					1	mg/L	lbs/d	23.8	23.8	1
c. Chlorine, Total Residual		X												
d. Color	X		14.0						1	PCU		15.0		1
e. Fecal Coliform Or E.coli	X		326						1	col/100mL		32.0		1
f. Fluoride (16984-48-8)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
g. Hardness (as $CaCO_3$)	X		1087	344	1087	344	672	116	13	mg/L	lbs/d	125	7366	40
h. Nitrate – Nitrite (as N)	X		0.330	0.0688					1	mg/L	lbs/d	1.10	78.5	1
i. Nitrogen, Total Organic (as N)	X		ND	ND					1	mg/L	lbs/d	ND	ND	1
j. Oil and Grease		0												
k. Phosphorous (as P), Total 7723-14-0	X		0.100	0.0209					1	mg/L	lbs/d	0.0680	4.85	1
l. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium Total		X												
(4) Radium, 226, Total		X												
(5) Strontium-90, Total		X												
(6 Uranium		X												

Part B - Continued

1. POLLUTANT And CAS NO. (if available)	2 MARK "X"		3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Believed Present	b. Believed Absent	a. Maximum Daily Value (1) Concentration	a. Maximum Daily Value (2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	b. Maximum 30-Day Value (if available) (2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	c. Long-Term Avg. Value (if available) (2) Mass	d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg. Value (1) Concentration	a. Long-Term Avg. Value (2) Mass	b. No. of Analyses
m. Sulfate (as SO_4) (14808-79-8)	X		358	74.6					1	mg/L	lbs/d	51.9	3705	1
n. Sulfide (as S)		X												
o. Sulfite (as SO_3) (14286-46-3)		X												
p. Surfactants		X												
q. Aluminum, Total (7429-90)	X		173	0.00866					1	µg/L	lbs/d	1420	76.7	1
r. Barium, Total (7440-39-3)	X		49.0	0.00245					1	µg/L	lbs/d	61.0	3.30	1
s. Boron, Total (7440-42-8)	X		183	0.00916					1	µg/L	lbs/d	39.0	2.11	1
t. Cobalt, Total (7440-48-4)	X		ND	ND					1	µg/L	lbs/d	2.00	0.108	1
u. Iron, Total (7439-89-6)	X		201	0.0101					1	µg/L	lbs/d	2292	124	1
v. Magnesium Total (7439-96-4)	X		4962	0.248					1	µg/L	lbs/d	61.0	3.30	1
w. Molybdenum Total (7439-98-7)	X		12.6	0.000631					1	µg/L	lbs/d	ND	ND	1
x. Manganese, Total (7439-96-6)	X		112	0.00562					1	µg/L	lbs/d	247	13.3	1
y. Tin, Total (7440-31-5)		X												
z. Titanium, Total (7440-32-6)	X		0.0150	0.00313					1	mg/L	lbs/d	0.0140	0.999	1

Part C – If you are a primary industry and this outfall contains process wastewater, refer to Table C-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in the **Testing Required** column for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark this column (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in the **Believed Present** column for each pollutant you know or have reason to believe is present. Mark "X" in the **Believed Absent** column for each pollutant you believe to be absent. If you mark either the **Testing Required** or **Believed Present** columns for any pollutant, you must provide the result of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
METALS, CYANIDE AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	X			2.58	0.000516	2.58	0.000516	0.398	0.0000597	13	µg/L	lbs/d	ND	ND	13
2M. Arsenic, Total (7440-38-2)	X			4.04	0.000572	4.04	0.000572	1.67	0.000215	13	µg/L	lbs/d	0.877	0.0519	13
3M. Beryllium Total (7440-41-7)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	ND	ND	13
4M. Cadmium Total (7440-43-9)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	0.0278	0.00141	13
5M. Chromium Total (7440-43-9)	X			7.29	0.00251	7.29	0.00251	2.02	0.000576	13	µg/L	lbs/d	0.920	0.0485	13
6M. Copper Total (7550-50-8)	X			1.50	0.000613	1.50	0.000613	0.463	0.000106	13	µg/L	lbs/d	2.76	0.154	13
7M. Lead Total (7439-92-1)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	2.23	0.117	13
8M. Mercury Total (7439-97-6)	X			ND	ND	ND	ND	ND	ND	13	ng/L	lbs/d	1.92	0.000111	13
9M. Nickel, Total (7440-02-0)	X			1.40	0.000572	1.40	0.000572	0.294	0.0000720	13	µg/L	lbs/d	3.25	0.179	13
10M. Selenium, Total (7782-49-2)	X			12.4	0.00439	12.4	0.00439	4.86	0.00111	13	µg/L	lbs/d	0.504	0.0304	13
11M. Silver, Total (7440-28-0)	X			ND	ND	ND	ND	ND	ND	13	µg/L	lbs/d	ND	ND	13

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
METALS, CYANIDE AND TOTAL PHENOLS (Continued)															
12M. Thallium, Total (7440-28-0)	X			1.20	0.000123	1.20	0.000123	0.2882	0.0000321	13	µg/L	lbs/d	0.180	0.0113	13
13M. Zinc, Total (7440-66-6)	X			10.4	0.00104	10.4	0.00104	0.800	0.0000801	13	µg/L	lbs/d	7.26	0.394	13
14M. Cyanide, Total (57-12-5)	X			0.00300	0.000300	0.00300	0.000300	0.000214	0.0000214	14	mg/L	lbs/d	0.714	0.0283	14
15M. Phenols, Total	X			0.0500	0.0100	0.0500	0.0100	0.00357	0.000715	14	mg/L	lbs/d	ND	ND	14
DIOXIN															
2,3,7,8 Tetra-chlorodibenzo, P. Dioxin (1784-01-6)			X	DESCRIBE RESULTS:											
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2V. Acrylonitrile (107-13-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3V. Benzene (71-43-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5V. Bromoform (75-25-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6V. Carbon Tetrachloride (56-23-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7V. Chloro-benzene (108-90-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8V. Chlorodibro-momethane (124-48-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
9V. Chloroethane (74-00-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11V. Chloroform (67-66-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12V. Dichloro-bromomethane (75-71-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14V. 1,1-Dichloroethane (75-34-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15V. 1,2-Dichloroethane (107-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16V. 1,1-Dichlorethylene (75-35-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17V. 1,2-Di-chloropropane (78-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18V. 1,3-Dichloropro-pylene (452-75-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19V. Ethyl-benzene (100-41-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20V. Methyl Bromide (74-83-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
21V. Methyl Chloride (74-87-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22V. Methylene Chloride (75-00-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23V. 1,1,2,2-Tetrachloro-ethane (79-34-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
24V. Tetrachloro-ethylene (127-18-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25V. Toluene (108-88-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26V. 1,2-Trans-Dichloro-ethylene (156-60-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27V. 1,1,1-Tri-chloroethane (71-55-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28V. 1,1,2-Tri-chloroethane (79-00-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29V. Trichloro-ethylene (79-01-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30V. Vinyl Chloride (75-01-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chloro-phenol (95-57-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
2A. 2,4-Dichlor-Orophenol (120-83-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3A. 2,4-Dimeth-ylphenol (105-67-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4A. 4,6-Dinitro-o-cresol (534-52-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5A. 2,4-Dinitro-phenol (51-28-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6A. 2-Nitro-phenol (88-75-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7A. 4-Nitro-phenol (100-02-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8A. P-chloro-m-cresol (59-50-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9A. Pentachloro-phenol (87-88-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10A. Phenol (108-05-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11A. 2,4,6-Tn-chlorophenol (88-06-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acena-phthene (83-32-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
2B. Acenaphtylene (208-96-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
3B. Anthracene (120-12-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
4B. Benzidine (92-87-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
5B. Benzo(a)-anthracene (56-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
6B. Benzo(a)-pyrene (50-32-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
8B. Benzo(ghi) perylene (191-24-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
9B. Benzo(k)-fluoranthene (207-08-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
10B. Bis(2-chloroethoxy)-methane (111-91-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
11B. Bis (2-chloroisopropyl)-Ether	X			ND	ND					1	µg/L	lb/d	ND	ND	1
12B. Bis (2-ethylhexyl)-phthalate (117-81-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	a. Believed Present	b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	(2) Mass	b. Maximum 30-Day Value (if available) (1) Concentration	(2) Mass	c. Long-Term Avg. Value (if available) (1) Concentration	(2) Mass	d. No. of Analyses	4 UNITS a. Concentration	b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	(2) Mass	b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
13B. 4-Bromo-phenyl Phenyl ether (101-55-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
14B. Butyl-benzyl phthalate (85-68-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
15B. 2-Chloro-naphthalene (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
16B. 4-Chloro-phenyl phenyl ether (7005-72-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
17B. Chrysene (218-01-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
18B. Dibenzo-(a,h) Anthracene (53-70-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
19B. 1,2-Dichloro-benzene (95-50-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
20B. 1,3-Dichloro-Benzene (541-73-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
21B. 1,4-Dichloro-benzene (106-46-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
22B. 3,3-Dichloro-benzidene (91-94-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
23B. Diethyl Phthalate (84-66-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
24B. Dimethyl Phthalate (131-11-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
25B. Di-N-butyl Phthalate (84-74-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
26B. 2,4-Dinitro-toluene (121-14-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
27B. 2,6-Dinitro-toluene (606-20-2)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
28B. Di-n-octyl Phthalate (117-84-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
29B. 1,2-diphenyl-hydrazine (as azonbenzene) (122-66-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
30B. Fluoranthene (208-44-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
31B. Fluorene (86-73-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
32B. Hexachloro-benzene (118-71-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
33B. Hexachloro-butadiene (87-68-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
34B. Hexachloro-cyclopenta-diene (77-47-4)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X" a. Testing Required	2 MARK "X" a. Believed Present	2 MARK "X" b. Believed Absent	3 EFFLUENT a. Maximum Daily Value (1) Concentration	3 EFFLUENT a. Maximum Daily Value (2) Mass	3 EFFLUENT b. Maximum 30-Day Value (if available) (1) Concentration	3 EFFLUENT b. Maximum 30-Day Value (if available) (2) Mass	3 EFFLUENT c. Long-Term Avg. Value (if available) (1) Concentration	3 EFFLUENT c. Long-Term Avg. Value (if available) (2) Mass	3 EFFLUENT d. No. of Analyses	4 UNITS a. Concentration	4 UNITS b. Mass	5 INTAKE (optional) a. Long-Term Avg Value (1) Concentration	5 INTAKE (optional) a. Long-Term Avg Value (2) Mass	5 INTAKE (optional) b. No. of Analyses
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (Continued)															
35B. Hexachloroethane (67-72-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
36B. Indeno-(1,2,3-cd)-Pyrene (193-39-5)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
37B. Isophorone (78-59-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
38B. Napthalene (91-20-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
39B. Nitrobenzene (98-95-3)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
40B. N-Nitrosodimethylamine (62-75-9)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
41B. N-nitrosodi-n-propylamine (621-64-7)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
42B. N-nitrosodiphenylamine (86-30-6)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
43B. Phenanthrene (85-01-8)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
44B. Pyrene (129-00-0)	X			ND	ND					1	µg/L	lb/d	ND	ND	1
45B. 1,2,4 Trichlorobenzene (120-82-1)	X			ND	ND					1	µg/L	lb/d	ND	ND	1

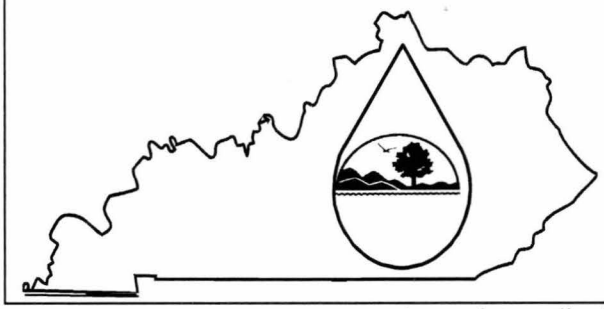
Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (58-89-9)			X												
4P. gamma-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												

Part C – Continued

1 POLLUTANT And CAS NO. (if available)	2 MARK "X"			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Testing Required	a. Believed Present	b. Believed Absent	a. Maximum Daily Value		b. Maximum 30-Day Value (if available)		c. Long-Term Avg. Value (if available)		d. No. of Analyses	a. Concentration	b. Mass	a. Long-Term Avg Value		b. No. of Analyses
				(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass				(1) Concentration	(2) Mass	
GC/MS FRACTION – PESTICIDES															
15P. Endrin Aldehyde (7421-93-4)			X												
16P Heptachlor (76-44-8)			X												
17P. Heptaclor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

KPDES FORM F



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, Contact Surface Water Permits Branch, (502) 564-3410.

I. OUTFALL LOCATION | AGENCY USE

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and name the receiving water.

A. Outfall Number	B. Latitude			C. Longitude			D. Receiving Water (name)
006	38	42	7.9	-83	48	50.4	Ohio River
008	38	41	9.01	-83	49	46.76	Lawrence Creek
011	38	41	43.2	-83	50	16.8	Lawrence Creek

II. IMPROVEMENTS

A. Are you now required by any federal, state, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions. **NO**

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls No.	Source of Discharge	3. Brief Description of Project	4. Final Compliance Date a. req.	b. proj.
NA	NA	NA	NA	NA	NA

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

III. SITE DRAINAGE MAP

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each know past or present areas used for outdoor storage or disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage of disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which receive storm water discharges from the facility.

SEE ATTACHMENT E

IV. NARRATIVE DESCRIPTION OF POLLUTANT SOURCES

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
006	45.4 acres	52.4 acres	011	0.21 acres	48.4 acres
008	0.48 acres	189.5 acres			

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

See Attachment F

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table F-1
See Attachment G		

V. NON-STORM WATER DISCHARGES

A. I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of non-storm water discharges, and that all non-storm water discharges from these outfall(s) are identified in either an accompanying Form C or Form SC application for the outfall.

Name and Official Title (type or print)	Signature	Date Signed
Jerry Purvis – Vice President, Environmental Affairs		

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

Visual inspection of outfalls 006, 008, and 011 during dry weather.

VI. SIGNIFICANT LEAKS OR SPILLS

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

There have been no reportable spills in the last three years.

VII. DISCHARGE INFORMATION

A,B,C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided. Parts A, B, C, & D are included on separate pages 4 and 5.

E: Potential discharges not covered by analysis - is any toxic pollutant listed in Table F-2, F-3, or F-4, a substance which you currently use or manufacture as an intermediate or final product or by product.

☐ Yes (list all such pollutants below) ☒ No (go to Section IX)

See Form C for laboratory results.

VIII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ Yes (list all such results below) ☐ No (go to Section IX)

Permit requirement to perform 48-hour static toxicity test with water fleas (Ceriodaphnia dubia) quarterly at Outfall 001.

IX. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in item VII performed by a contract laboratory or consulting firm?

☒ Yes (list the name, address and telephone number of, and pollutants analyzed by each such laboratory or firm below; use additional sheets if necessary).

☐ No (go to Section IX)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
ALS Environmental	1740 Union Carbide Drive South Charleston, WV 25303	(304) 356-3168	Color, BOD, Fecal Coliform
McCoy & McCoy Laboratories, Inc.	P.O. Box 907 Madisonville, KY 42431	(270) 821-7375	Color, BOD, Fecal Coliform, Titanium
ALS Environmental	3352 128th Avenue Holland, MI 49424	(616) 399-6070	SVOC's, VOC's, COD, Bromide, Ammonia, Nitrate-Nitrite, Organic Nitrogen, Phenols, Cyanide, Total Organic Carbon, Titanium
Pace Analytical Services, LLC	1638 Roseytown Road – Suites 2,3,4 Greensburg, PA 15601	(724) 850-5600	Radionuclides
East Kentucky Power Cooperative – Central Laboratory	4775 Lexington Rd Winchester, KY 40391	(859) 744-4812	Total Suspended Solids, Chloride, Fluoride, Hardness, Oil & Grease, Sulfate, Aluminum, Barium, Boron, Cobalt, Iron, Magnesium, Molybdenum, Manganese, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Zinc

X. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

NAME & OFFICIAL TITLE (type or print) **Mr.** ☒ **Ms.** ☐ Jerry Purvis – Vice President, Environmental Affairs	**AREA CODE AND PHONE NO.** 859-744-4812
SIGNATURE	**DATE SIGNED**

VII. DISCHARGE INFORMATION (Continued from page 4 of Form F)	OUTFALL NO. 006

Part A – **You must provide the results of at least one analysis for every pollutant in this table.** Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Oil and Grease	n/a	n/a	n/a	n/a	0	
Biological Oxygen Demand BOD5	9.00 mg/L	n/a	9.00 mg/L	n/a	1	
Chemical Oxygen Demand (COD)	ND mg/L	n/a	ND mg/L	n/a	1	
Total Suspended Solids (TSS)	3.60 mg/L	n/a	3.60 mg/L	n/a	2	
Total Kjeldahl Nitrogen (Total Organic Nitrogen)	0.540 mg/L	n/a	0.540 mg/L	n/a	1	
Nitrate plus Nitrite Nitrogen	1.20 mg/L	n/a	1.20 mg/L	n/a	1	
Total Phosphorus	ND mg/L	n/a	ND mg/L	n/a	1	
pH	Minimum 7.67		Maximum 7.92		3	

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's KPDES permit for its process wastewater (if the facility is operating under an existing KPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Fecal Coliform	19.0 CFU/100mL	n/a	19.0 CFU/100mL	n/a	1	
Hardness	169 mg/L	n/a	157 mg/L	n/a	2	
Dissolved Oxygen	n/a	n/a	n/a	n/a	0	
Total Suspended Solids (TSS)	3.60 mg/L	n/a	3.60 mg/L	n/a	1	
Oil and Grease	n/a	n/a	n/a	n/a	0	
Copper, Total (7550-50-8)	3.80 µg/L	n/a	3.80 µg/L	n/a	1	
Iron, Total (7439-89-6)	170 µg/L	n/a	170 µg/L	n/a	1	
Free Available chlorine	n/a	n/a	n/a	n/a	0	
Total Residual Chlorine	n/a	n/a	n/a	n/a	0	
Chromium, Total (7440-47-3)	3.20 µg/L	n/a	3.20 µg/L	n/a	1	
Zinc, Total (7440-66-6)	50.4 µg/L	n/a	50.4 µg/L	n/a	1	
Acenapthene (83-32-9)	ND µg/L	n/a	ND µg/L	n/a	1	
Acrolein (107-02-8)	ND µg/L	n/a	ND µg/L	n/a	1	
Acrylonitrile (107-13-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Benzene (71-43-2)	ND µg/L	n/a	ND µg/L	n/a	1	
Benzidine (92-87-5)	ND µg/L	n/a	ND µg/L	n/a	1	
Carbon Tetrachloride (56-23-5)	ND µg/L	n/a	ND µg/L	n/a	1	
Chlorobenzene (108-90-7)	ND µg/L	n/a	ND µg/L	n/a	1	
1,2,4-trichlorobenzene (120-82-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Hexachlorobenzene (118-74-1)	ND µg/L	n/a	ND µg/L	n/a	1	
1,2-dichloroethane (107-06-2)	ND µg/L	n/a	ND µg/L	n/a	1	
1,1,1-trichloroethane (71-55-6)	ND µg/L	n/a	ND µg/L	n/a	1	

Part B - Continued							
1,1,-dichloroethane (75-34-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1,2-trichloroethane (79-00-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1,2,2-tetrachloroethane (79-34-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chloroethane (74-00-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis (2-chloroethyl) ether (111-44-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chloroethyl vinyl ether (110-75-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chloronapthalene (91-58-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4,6-trichlorophenol (88-06-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Parachlorometa-cresol (59-50-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chloroform (trichloromethane) (67-66-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chlorophenol (95-57-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichlorobenzene (95-50-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,3-dichlorobenzene (541-73-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,4-dichlorobenzene (106-46-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
3,3-dichlorobenzidine (91-94-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1-dichloroethylene (75-35-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-trans-dichloroethylene (156-60-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dichlorophenol (120-83-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichloropropane (78-87-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichloropropene (563-54-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dimethylphenol (105-67-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dinitrotoluene (121-14-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,6-dinitrotoluene (606-20-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-diphenylhydrazine (122-66-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Ethylbenzene (100-41-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Fluoranthene (206-44-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-chlorophenyl phenyl ether (7005-72-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-bromophenyl phenyl ether (101-55-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-chloroisopropyl) ether (108-60-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-chloroethoxy) methane (111-91-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Methylene chloride (dichloromethane) (75-09-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	

Part B - Continued							
Bromoform (tribromomethane) (75-25-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Dichlorobromo-methane (75-27-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chlorodibromo-methane (124-48-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Hexachlorobutadiene (87-68-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Hexachloromyclo-pentadiene (77-47-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Isophorone (78-59-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Naphthalene (91-20-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Nitrobenzene (98-95-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-nitrophenol (88-75-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-nitrophenol (100-02-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dinitrophenol (51-28-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4,6-dinitro-o-cresol (534-52-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodimethylamine (62-75-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodiphenylamine (86-30-6)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodi-n-propylamine (621-64-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Pentachlorophenol (87-86-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Phenol (108-59-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-ethylhexyl) phthalate (117-81-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Butyl benzyl phthalate (85-68-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Di-N-Butyl Phthalate (84-74-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Di-n-octyl phthalate (117-84-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Diethyl Phthalate (84-66-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Dimethyl phthalate (131-11-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-benzanthracene (benzo(a) anthracene) 56-55-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Benzo(a)pyrene (3,4-benzo-pyrene) 50-32-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
3,4-Benzofluoranthene (benzo(b) fluoranthene) (205-99-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
11,12-benzofluoranthene (benzo(b) fluoranthene) (207-08-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chrysene (218-01-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Acenaphthylene (208-96-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Anthracene (120-12-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	

Part B - Continued							
Fluorene (86-73-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Phenanthrene (85-01-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2,5,6-dibenzanthracene (dibenzo(,h) anthracene) (53-70-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Indeno (,1,2,3-cd) pyrene (2,3-o-pheynylene pyrene) (193-39-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Pyrene (129-00-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Tetrachloroethylene (127-18-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Toluene (108-88-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Trichloroethylene (79-01-6)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Vinyl chloride (chloroethylene) (75-01-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Aldrin (309-00-2)	n/a		n/a	n/a		n/a	0	
Dieldrin (60-57-1)	n/a		n/a	n/a		n/a	0	
Chlordane (57-74-9)	n/a		n/a	n/a		n/a	0	
4,4-DDT (50-29-3)	n/a		n/a	n/a		n/a	0	
4,4-DDE (p,p-DDX) (72-55-9)	n/a		n/a	n/a		n/a	0	
4,4-DDD (p,p-TDE) (72-54-8)	n/a		n/a	n/a		n/a	0	
Alpha-endosulfan (95-99-98)	n/a		n/a	n/a		n/a	0	
Beta-endosulfan (33213-95-9)	n/a		n/a	n/a		n/a	0	
Endosulfan sulfate (1031-07-8)	n/a		n/a	n/a		n/a	0	
Endrin (72-20-8)	n/a		n/a	n/a		n/a	0	
Endrin aldehyde (7421-93-4)	n/a		n/a	n/a		n/a	0	
Heptachlor (76-44-8)	n/a		n/a	n/a		n/a	0	
Heptachlor epoxide (BHC-hexachloro-cyclohexane) (1024-57-3)	n/a		n/a	n/a		n/a	0	
Alpha-BHC (319-84-6)	n/a		n/a	n/a		n/a	0	
Beta-BHC (89609-19-8)	n/a		n/a	n/a		n/a	0	
Gamma-BHC (lindane) (58-89-9)	n/a		n/a	n/a		n/a	0	
Delta-BHC (PCB-polychlorinated biphenyls) (319-86-8)	n/a		n/a	n/a		n/a	0	
PCB-1242 (Arochlor 1242) (53469-21-9)	n/a		n/a	n/a		n/a	0	
PCB-1254 (Arochlor 1254) (11097-69-1)	n/a		n/a	n/a		n/a	0	
PCB-1221 (Arochlor 1221) (11104-28-2)	n/a		n/a	n/a		n/a	0	
PCB-1232 (Arochlor 1232) (11141-16-5)	n/a		n/a	n/a		n/a	0	
PCB-1248 (Arochlor 1248) (12672-29-6)	n/a		n/a	n/a		n/a	0	
PCB-1260 (Arochlor 1260) (11096-82-5)	n/a		n/a	n/a		n/a	0	

Part B - Continued						
Toxaphene (8001-35-2)	n/a	n/a	n/a	n/a	0	
Antimony (7440-36-0)	ND µg/L	n/a	ND µg/L	n/a	1	
Arsenic (7440-38-2)	2.90 µg/L	n/a	2.90 µg/L	n/a	1	
Asbestos	n/a	n/a	n/a	n/a	0	
Beryllium (7440-41-7)	ND µg/L	n/a	ND µg/L	n/a	1	
Cadmium (7440-43-9)	0.790 µg/L	n/a	0.790 µg/L	n/a	1	
Lead (7439-92-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Mercury (7439-97-6)	ND ng/L	n/a	ND ng/L	n/a	1	
Nickel (7440-02-0)	9.80 µg/L	n/a	9.80 µg/L	n/a	1	
Selenium (7782-49-2)	8.00 µg/L	n/a	8.00 µg/L	n/a	1	
Silver (7440-22-4)	ND µg/L	n/a	ND µg/L	n/a	1	
Thallium (7440-28-0)	0.730 µg/L	n/a	0.730 µg/L	n/a	1	
2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) (1746-01-6)	n/a	n/a	n/a	n/a	0	

Part C - List each pollutant shown in Tables F-2, F-3, and F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Bromide (24959-67-9)	ND mg/L	n/a	ND mg/L	n/a	1	
Chlorine, Total Residual	n/a	n/a	n/a	n/a	0	
Color	8.00 CU	n/a	8.00 CU	n/a	1	
Fecal Coliform	19.0 CFU/100mL	n/a	19.0 CFU/100mL	n/a	1	
Fluoride (16984-48-8)	0.900 mg/L	n/a	0.900 mg/L	n/a	1	
Nitrate-Nitrite (as N)	1.20 mg/L	n/a	1.20 mg/L	n/a	1	
Nitrogen, Total Organic (as N)	ND mg/L	n/a	ND mg/L	n/a	1	
Phosphorus, Total (7723-14-0)	0.0780 mg/L	n/a	0.0780 mg/L	n/a	1	
Sulfate (14808-79-8)	337 mg/L	n/a	337 mg/L	n/a	1	
Aluminum, Total (7429-90)	140 µg/L	n/a	140 µg/L	n/a	1	
Barium, Total (7440-39-3)	60.5 µg/L	n/a	60.5 µg/L	n/a	1	
Boron, Total (7440-42-8)	2848 µg/L	n/a	2848 µg/L	n/a	1	
Cobalt, Total (7440-48-4)	1.10 µg/L	n/a	1.10 µg/L	n/a	1	
Iron, Total (7439-89-6)	170 µg/L	n/a	170 µg/L	n/a	1	
Magnesium, Total (7439-96-4)	50543 µg/L	n/a	50543 µg/L	n/a	1	
Molybdenum, Total (7439-98-7)	25.3 µg/L	n/a	25.3 µg/L	n/a	1	
Manganese, Total (7439-96-6)	1595 µg/L	n/a	1595 µg/L	n/a	1	
Titanium, Total (7440-32-6)	0.00730 mg/L	n/a	0.00730 mg/L	n/a	1	
Antimony, Total (7440-36-0)	ND µg/L	n/a	ND µg/L	n/a	1	
Arsenic, Total (7440-38-2)	2.90 µg/L	n/a	2.90 µg/L	n/a	1	
Cadmium, Total (7440-43-9)	0.790 µg/L	n/a	0.790 µg/L	n/a	1	

Part C - Continued						
Chromium, Total (7440-47-3)	3.20 µg/L	n/a	3.20 µg/L	n/a	1	
Copper, Total (7550-50-8)	3.80 µg/L	n/a	3.80 µg/L	n/a	1	
Lead, Total (7439-92-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Mercury, Total (7439-97-6)	ND ng/L	n/a	ND ng/L	n/a	1	
Nickel, Total (7440-02-0)	9.80 µg/L	n/a	9.80 µg/L	n/a	1	
Selenium, Total (7782-49-2)	8.00 µg/L	n/a	8.00 µg/L	n/a	1	
Thallium, Total (7440-28-0)	0.730 µg/L	n/a	0.730 µg/L	n/a	1	
Zinc, Total (7440-66-6)	50.4 µg/L	n/a	50.4 µg/L	n/a	1	

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow-weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gal/min or specify units)	6. Total flow from rain event (gallons or specify units)
11/29/2016	510	0.33	113.5	0.399 MGD	0.42 MG
1/3/2017	900	0.43	171	0.52 MGD	0.54 MG
2/22/2017	540	0.37	247	0.447 MGD	0.47 MG

7. Provide a description of the method of flow measurement or estimate.

Rational Method

VII. DISCHARGE INFORMATION (Continued from page 4 of Form F)	OUTFALL NO. 008

Part A – **You must provide the results of at least one analysis for every pollutant in this table.** Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Oil and Grease	n/a	n/a	n/a	n/a	0	
Biological Oxygen Demand BOD5	2.00 mg/L	n/a	2.00 mg/L	n/a	1	
Chemical Oxygen Demand (COD)	6.20 mg/L	n/a	6.20 mg/L	n/a	1	
Total Suspended Solids (TSS)	10.5 mg/L	n/a	7.20 mg/L	n/a	2	
Total Kjeldahl Nitrogen (Total Organic Nitrogen)	0.0600 mg/L	n/a	0.0600 mg/L	n/a	1	
Nitrate plus Nitrite Nitrogen	1.60 mg/L	n/a	1.60 mg/L	n/a	1	
Total Phosphorus	ND mg/L	n/a	ND mg/L	n/a	1	
pH	Minimum 8.09	Maximum 8.19			3	

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's KPDES permit for its process wastewater (if the facility is operating under an existing KPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Fecal Coliform	12.0 CFU/100mL	n/a	12.0 CFU/100mL	n/a	1	
Hardness	1348 mg/L	n/a	965 mg/L	n/a	2	
Dissolved Oxygen	n/a	n/a	n/a	n/a	0	
Total Suspended Solids (TSS)	10.5 mg/L	n/a	7.20 mg/L	n/a	2	
Oil and Grease	n/a	n/a	n/a	n/a	0	
Copper, Total (7550-50-8)	ND µg/L	n/a	ND µg/L	n/a	2	
Iron, Total (7439-89-6)	137 µg/L	n/a	137 µg/L	n/a	1	
Free Available chlorine	n/a	n/a	n/a	n/a	0	
Total Residual Chlorine	n/a	n/a	n/a	n/a	0	
Chromium, Total (7440-47-3)	ND µg/L	n/a	ND µg/L	n/a	2	
Zinc, Total (7440-66-6)	ND µg/L	n/a	ND µg/L	n/a	1	
Acenapthene (83-32-9)	ND µg/L	n/a	ND µg/L	n/a	1	
Acrolein (107-02-8)	ND µg/L	n/a	ND µg/L	n/a	1	
Acrylonitrile (107-13-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Benzene (71-43-2)	ND µg/L	n/a	ND µg/L	n/a	1	
Benzidine (92-87-5)	ND µg/L	n/a	ND µg/L	n/a	1	
Carbon Tetrachloride (56-23-5)	ND µg/L	n/a	ND µg/L	n/a	1	
Chlorobenzene (108-90-7)	ND µg/L	n/a	ND µg/L	n/a	1	
1,2,4-trichlorobenzene (120-82-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Hexachlorobenzene (118-74-1)	ND µg/L	n/a	ND µg/L	n/a	1	
1,2-dichloroethane (107-06-2)	ND µg/L	n/a	ND µg/L	n/a	1	
1,1,1-trichloroethane (71-55-6)	ND µg/L	n/a	ND µg/L	n/a	1	

Part B - Continued							
1,1,-dichloroethane (75-34-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1,2-trichloroethane (79-00-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1,2,2-tetrachloroethane (79-34-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chloroethane (74-00-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis (2-chloroethyl) ether (111-44-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chloroethyl vinyl ether (110-75-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chloronapthalene (91-58-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4,6-trichlorophenol (88-06-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Parachlorometa-cresol (59-50-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chloroform (trichloromethane) (67-66-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chlorophenol (95-57-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichlorobenzene (95-50-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,3-dichlorobenzene (541-73-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,4-dichlorobenzene (106-46-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
3,3-dichlorobenzidine (91-94-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1-dichloroethylene (75-35-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-trans-dichloroethylene (156-60-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dichlorophenol (120-83-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichloropropane (78-87-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichloropropene (563-54-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dimethylphenol (105-67-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dinitrotoluene (121-14-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,6-dinitrotoluene (606-20-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-diphenylhydrazine (122-66-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Ethylbenzene (100-41-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Fluoranthene (206-44-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-chlorophenyl phenyl ether (7005-72-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-bromophenyl phenyl ether (101-55-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-chloroisopropyl) ether (108-60-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-chloroethoxy) methane (111-91-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Methylene chloride (dichloromethane) (75-09-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	

Part B - Continued							
Bromoform (tribromomethane) (75-25-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Dichlorobromo-methane (75-27-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chlorodibromo-methane (124-48-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Hexachlorobutadiene (87-68-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Hexachloromyclo-pentadiene (77-47-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Isophorone (78-59-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Naphthalene (91-20-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Nitrobenzene (98-95-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-nitrophenol (88-75-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-nitrophenol (100-02-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dinitrophenol (51-28-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4,6-dinitro-o-cresol (534-52-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodimethylamine (62-75-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodiphenylamine (86-30-6)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodi-n-propylamine (621-64-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Pentachlorophenol (87-86-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Phenol (108-59-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-ethylhexyl) phthalate (117-81-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Butyl benzyl phthalate (85-68-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Di-N-Butyl Phthalate (84-74-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Di-n-octyl phthalate (117-84-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Diethyl Phthalate (84-66-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Dimethyl phthalate (131-11-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-benzanthracene (benzo(a) anthracene) 56-55-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Benzo(a)pyrene (3,4-benzo-pyrene) 50-32-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
3,4-Benzofluoranthene (benzo(b) fluoranthene) (205-99-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
11,12-benzofluoranthene (benzo(b) fluoranthene) (207-08-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chrysene (218-01-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Acenaphthylene (208-96-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Anthracene (120-12-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	

Part B - Continued							
Fluorene (86-73-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Phenanthrene (85-01-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2,5,6-dibenzanthracene (dibenzo(,h) anthracene) (53-70-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Indeno (,1,2,3-cd) pyrene (2,3-o-pheynylene pyrene) (193-39-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Pyrene (129-00-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Tetrachloroethylene (127-18-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Toluene (108-88-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Trichloroethylene (79-01-6)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Vinyl chloride (chloroethylene) (75-01-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Aldrin (309-00-2)	n/a		n/a	n/a		n/a	0	
Dieldrin (60-57-1)	n/a		n/a	n/a		n/a	0	
Chlordane (57-74-9)	n/a		n/a	n/a		n/a	0	
4,4-DDT (50-29-3)	n/a		n/a	n/a		n/a	0	
4,4-DDE (p,p-DDX) (72-55-9)	n/a		n/a	n/a		n/a	0	
4,4-DDD (p,p-TDE) (72-54-8)	n/a		n/a	n/a		n/a	0	
Alpha-endosulfan (95-99-98)	n/a		n/a	n/a		n/a	0	
Beta-endosulfan (33213-95-9)	n/a		n/a	n/a		n/a	0	
Endosulfan sulfate (1031-07-8)	n/a		n/a	n/a		n/a	0	
Endrin (72-20-8)	n/a		n/a	n/a		n/a	0	
Endrin aldehyde (7421-93-4)	n/a		n/a	n/a		n/a	0	
Heptachlor (76-44-8)	n/a		n/a	n/a		n/a	0	
Heptachlor epoxide (BHC-hexachloro-cyclohexane) (1024-57-3)	n/a		n/a	n/a		n/a	0	
Alpha-BHC (319-84-6)	n/a		n/a	n/a		n/a	0	
Beta-BHC (89609-19-8)	n/a		n/a	n/a		n/a	0	
Gamma-BHC (lindane) (58-89-9)	n/a		n/a	n/a		n/a	0	
Delta-BHC (PCB-polychlorinated biphenyls) (319-86-8)	n/a		n/a	n/a		n/a	0	
PCB-1242 (Arochlor 1242) (53469-21-9)	n/a		n/a	n/a		n/a	0	
PCB-1254 (Arochlor 1254) (11097-69-1)	n/a		n/a	n/a		n/a	0	
PCB-1221 (Arochlor 1221) (11104-28-2)	n/a		n/a	n/a		n/a	0	
PCB-1232 (Arochlor 1232) (11141-16-5)	n/a		n/a	n/a		n/a	0	
PCB-1248 (Arochlor 1248) (12672-29-6)	n/a		n/a	n/a		n/a	0	
PCB-1260 (Arochlor 1260) (11096-82-5)	n/a		n/a	n/a		n/a	0	

Part B - Continued						
Toxaphene (8001-35-2)	n/a	n/a	n/a	n/a	0	
Antimony (7440-36-0)	1.55 µg/L	n/a	0.776 µg/L	n/a	2	
Arsenic (7440-38-2)	13.5 µg/L	n/a	12.9 µg/L	n/a	2	
Asbestos	n/a	n/a	n/a	n/a	0	
Beryllium (7440-41-7)	ND µg/L	n/a	ND µg/L	n/a	2	
Cadmium (7440-43-9)	0.889 µg/L	n/a	0.445 µg/L	n/a	2	
Chromium (7440-47-3)	ND µg/L	n/a	ND µg/L	n/a	2	
Copper (7440-50-8)	ND µg/L	n/a	ND µg/L	n/a	2	
Lead (7439-92-1)	ND µg/L	n/a	ND µg/L	n/a	2	
Mercury (7439-97-6)	6.30 ng/L	n/a	3.15 ng/L	n/a	2	
Nickel (7440-02-0)	ND µg/L	n/a	ND µg/L	n/a	2	
Selenium (7782-49-2)	8.99 µg/L	n/a	5.89 µg/L	n/a	2	
Silver (7440-22-4)	ND µg/L	n/a	ND µg/L	n/a	2	
Thallium (7440-28-0)	0.920 µg/L	n/a	0.814 µg/L	n/a	2	
Zinc, Total (7440-66-6)	ND µg/L	n/a	ND µg/L	n/a	2	
2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) (1746-01-6)	n/a	n/a	n/a	n/a	0	

Part C - List each pollutant shown in Tables F-2, F-3, and F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Bromide (24959-67-9)	ND mg/L	n/a	ND mg/L	n/a	1	
Chlorine, Total Residual	n/a	n/a	n/a	n/a	0	
Color	12.0 CU	n/a	12.0 CU	n/a	1	
Fecal Coliform	12.0 CFU/100mL	n/a	12.0 CFU/100mL	n/a	1	
Fluoride (16984-48-8)	ND mg/L	n/a	ND mg/L	n/a	1	
Nitrate-Nitrite (as N)	1.60 mg/L	n/a	1.60 mg/L	n/a	1	
Nitrogen, Total Organic (as N)	ND mg/L	n/a	ND mg/L	n/a	1	
Phosphorus, Total (7723-14-0)	0.0530 mg/L	n/a	0.0530 mg/L	n/a	1	
Sulfate (14808-79-8)	906 mg/L	n/a	906 mg/L	n/a	1	
Aluminum, Total (7429-90)	137 µg/L	n/a	137 µg/L	n/a	1	
Barium, Total (7440-39-3)	36.9 µg/L	n/a	36.9 µg/L	n/a	1	
Boron, Total (7440-42-8)	4090 µg/L	n/a	4090 µg/L	n/a	1	
Cobalt, Total (7440-48-4)	ND µg/L	n/a	ND µg/L	n/a	1	
Iron, Total (7439-89-6)	137 µg/L	n/a	137 µg/L	n/a	1	
Magnesium, Total (7439-96-4)	13040 µg/L	n/a	13040 µg/L	n/a	1	
Molybdenum, Total (7439-98-7)	1166 µg/L	n/a	1166 µg/L	n/a	1	
Manganese, Total (7439-96-6)	70.8 µg/L	n/a	70.8 µg/L	n/a	1	
Titanium, Total (7440-32-6)	0.00790 mg/L	n/a	0.00790 mg/L	n/a	1	
Antimony, Total (7440-36-0)	1.55 µg/L	n/a	1.55 µg/L	n/a	2	
Arsenic, Total (7440-38-2)	13.5 µg/L	n/a	13.5 µg/L	n/a	2	
Cadmium, Total (7440-43-9)	0.889 µg/L	n/a	0.889 µg/L	n/a	2	

Part C - Continued						
Lead, Total (7439-92-1)	ND µg/L	n/a	ND µg/L	n/a	2	
Mercury, Total (7439-97-6)	6.30 ng/L	n/a	3.15 ng/L	n/a	2	
Nickel, Total (7440-02-0)	ND µg/L	n/a	ND µg/L	n/a	2	
Selenium, Total (7782-49-2)	8.99 µg/L	n/a	5.89 µg/L	n/a	2	
Thallium, Total (7440-28-0)	0.920 µg/L	n/a	0.814 µg/L	n/a	2	

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow-weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gal/min or specify units)	6. Total flow from rain event (gallons or specify units)
5/27/2015	450	0.71	234	0.107 MGD	1.64 MG
7/6/2016	1440	0.59	14	0.11 MGD	1.36 MG
3/2/2017	3420	1.73	130	0.041 MGD	4.0 MG

7. Provide a description of the method of flow measurement or estimate.

Rational Method

VII. DISCHARGE INFORMATION (Continued from page 4 of Form F)	OUTFALL NO. 011

Part A – **You must provide the results of at least one analysis for every pollutant in this table.** Complete one table for each outfall. See instructions for additional details.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Oil and Grease	n/a	n/a	n/a	n/a	0	
Biological Oxygen Demand BOD5	2.00 mg/L	n/a	2.00 mg/L	n/a	1	
Chemical Oxygen Demand (COD)	9.10 mg/L	n/a	9.10 mg/L	n/a	1	
Total Suspended Solids (TSS)	3.10 mg/L	n/a	1.72 mg/L	n/a	2	
Total Kjeldahl Nitrogen (Total Organic Nitrogen)	ND mg/L	n/a	ND mg/L	n/a	1	
Nitrate plus Nitrite Nitrogen	0.330 mg/L	n/a	0.330 mg/L	n/a	1	
Total Phosphorus	ND mg/L	n/a	ND mg/L	n/a	1	
pH	Minimum 7.82	Maximum 8.16			2	

Part B - List each pollutant that is limited in an effluent guideline which the facility is subject to or any pollutant listed in the facility's KPDES permit for its process wastewater (if the facility is operating under an existing KPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Fecal Coliform	326 CFU/100mL	n/a	326 CFU/100mL	n/a	1	
Hardness	906 mg/L	n/a	463 mg/L	n/a	2	
Dissolved Oxygen	n/a	n/a	n/a	n/a	0	
Total Suspended Solids (TSS)	3.10 mg/L	n/a	1.72 mg/L	n/a	1	
Oil and Grease	n/a	n/a	n/a	n/a	0	
Copper, Total (7550-50-8)	ND µg/L	n/a	ND µg/L	n/a	2	
Iron, Total (7439-89-6)	201 µg/L	n/a	201 µg/L	n/a	1	
Free Available chlorine	n/a	n/a	n/a	n/a	0	
Total Residual Chlorine	n/a	n/a	n/a	n/a	0	
Chromium, Total (7440-47-3)	ND µg/L	n/a	ND µg/L	n/a	2	
Zinc, Total (7440-66-6)	ND µg/L	n/a	ND µg/L	n/a	2	
Acenapthene (83-32-9)	ND µg/L	n/a	ND µg/L	n/a	1	
Acrolein (107-02-8)	ND µg/L	n/a	ND µg/L	n/a	1	
Acrylonitrile (107-13-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Benzene (71-43-2)	ND µg/L	n/a	ND µg/L	n/a	1	
Benzidine (92-87-5)	ND µg/L	n/a	ND µg/L	n/a	1	
Carbon Tetrachloride (56-23-5)	ND µg/L	n/a	ND µg/L	n/a	1	
Chlorobenzene (108-90-7)	ND µg/L	n/a	ND µg/L	n/a	1	
1,2,4-trichlorobenzene (120-82-1)	ND µg/L	n/a	ND µg/L	n/a	1	
Hexachlorobenzene (118-74-1)	ND µg/L	n/a	ND µg/L	n/a	1	
1,2-dichloroethane (107-06-2)	ND µg/L	n/a	ND µg/L	n/a	1	
1,1,1-trichloroethane (71-55-6)	ND µg/L	n/a	ND µg/L	n/a	1	

Part B - Continued							
1,1,-dichloroethane (75-34-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1,2-trichloroethane (79-00-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1,2,2-tetrachloroethane (79-34-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chloroethane (74-00-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis (2-chloroethyl) ether (111-44-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chloroethyl vinyl ether (110-75-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chloronapthalene (91-58-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4,6-trichlorophenol (88-06-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Parachlorometa-cresol (59-50-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chloroform (trichloromethane) (67-66-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-chlorophenol (95-57-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichlorobenzene (95-50-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,3-dichlorobenzene (541-73-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,4-dichlorobenzene (106-46-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
3,3-dichlorobenzidine (91-94-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,1-dichloroethylene (75-35-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-trans-dichloroethylene (156-60-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dichlorophenol (120-83-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichloropropane (78-87-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-dichloropropene (563-54-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dimethylphenol (105-67-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dinitrotoluene (121-14-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,6-dinitrotoluene (606-20-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-diphenylhydrazine (122-66-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Ethylbenzene (100-41-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Fluoranthene (206-44-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-chlorophenyl phenyl ether (7005-72-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-bromophenyl phenyl ether (101-55-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-chloroisopropyl) ether (108-60-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-chloroethoxy) methane (111-91-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Methylene chloride (dichloromethane) (75-09-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	

Part B - Continued							
Bromoform (tribromomethane) (75-25-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Dichlorobromo-methane (75-27-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chlorodibromo-methane (124-48-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Hexachlorobutadiene (87-68-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Hexachloromyclo-pentadiene (77-47-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Isophorone (78-59-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Naphthalene (91-20-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Nitrobenzene (98-95-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2-nitrophenol (88-75-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4-nitrophenol (100-02-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
2,4-dinitrophenol (51-28-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
4,6-dinitro-o-cresol (534-52-1)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodimethylamine (62-75-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodiphenylamine (86-30-6)	ND	µg/L	n/a	ND	µg/L	n/a	1	
N-nitrosodi-n-propylamine (621-64-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Pentachlorophenol (87-86-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Phenol (108-59-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Bis(2-ethylhexyl) phthalate (117-81-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Butyl benzyl phthalate (85-68-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Di-N-Butyl Phthalate (84-74-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Di-n-octyl phthalate (117-84-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Diethyl Phthalate (84-66-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Dimethyl phthalate (131-11-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2-benzanthracene (benzo(a) anthracene) 56-55-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Benzo(a)pyrene (3,4-benzo-pyrene) 50-32-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
3,4-Benzofluoranthene (benzo(b) fluoranthene) (205-99-2)	ND	µg/L	n/a	ND	µg/L	n/a	1	
11,12-benzofluoranthene (benzo(b) fluoranthene) (207-08-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Chrysene (218-01-9)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Acenaphthylene (208-96-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Anthracene (120-12-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	

Part B - Continued							
Fluorene (86-73-7)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Phenanthrene (85-01-8)	ND	µg/L	n/a	ND	µg/L	n/a	1	
1,2,5,6-dibenzanthracene (dibenzo(,h) anthracene) (53-70-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Indeno (,1,2,3-cd) pyrene (2,3-o-pheynylene pyrene) (193-39-5)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Pyrene (129-00-0)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Tetrachloroethylene (127-18-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Toluene (108-88-3)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Trichloroethylene (79-01-6)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Vinyl chloride (chloroethylene) (75-01-4)	ND	µg/L	n/a	ND	µg/L	n/a	1	
Aldrin (309-00-2)	n/a		n/a	n/a		n/a	0	
Dieldrin (60-57-1)	n/a		n/a	n/a		n/a	0	
Chlordane (57-74-9)	n/a		n/a	n/a		n/a	0	
4,4-DDT (50-29-3)	n/a		n/a	n/a		n/a	0	
4,4-DDE (p,p-DDX) (72-55-9)	n/a		n/a	n/a		n/a	0	
4,4-DDD (p,p-TDE) (72-54-8)	n/a		n/a	n/a		n/a	0	
Alpha-endosulfan (95-99-98)	n/a		n/a	n/a		n/a	0	
Beta-endosulfan (33213-95-9)	n/a		n/a	n/a		n/a	0	
Endosulfan sulfate (1031-07-8)	n/a		n/a	n/a		n/a	0	
Endrin (72-20-8)	n/a		n/a	n/a		n/a	0	
Endrin aldehyde (7421-93-4)	n/a		n/a	n/a		n/a	0	
Heptachlor (76-44-8)	n/a		n/a	n/a		n/a	0	
Heptachlor epoxide (BHC-hexachloro-cyclohexane) (1024-57-3)	n/a		n/a	n/a		n/a	0	
Alpha-BHC (319-84-6)	n/a		n/a	n/a		n/a	0	
Beta-BHC (89609-19-8)	n/a		n/a	n/a		n/a	0	
Gamma-BHC (lindane) (58-89-9)	n/a		n/a	n/a		n/a	0	
Delta-BHC (PCB-polychlorinated biphenyls) (319-86-8)	n/a		n/a	n/a		n/a	0	
PCB-1242 (Arochlor 1242) (53469-21-9)	n/a		n/a	n/a		n/a	0	
PCB-1254 (Arochlor 1254) (11097-69-1)	n/a		n/a	n/a		n/a	0	
PCB-1221 (Arochlor 1221) (11104-28-2)	n/a		n/a	n/a		n/a	0	
PCB-1232 (Arochlor 1232) (11141-16-5)	n/a		n/a	n/a		n/a	0	
PCB-1248 (Arochlor 1248) (12672-29-6)	n/a		n/a	n/a		n/a	0	
PCB-1260 (Arochlor 1260) (11096-82-5)	n/a		n/a	n/a		n/a	0	

Part B - Continued						
Toxaphene (8001-35-2)	n/a	n/a	n/a	n/a	0	
Antimony (7440-36-0)	1.20 µg/L	n/a	0.600 µg/L	n/a	2	
Arsenic (7440-38-2)	1.70 µg/L	n/a	0.850 µg/L	n/a	2	
Asbestos	n/a	n/a	n/a	n/a	0	
Beryllium (7440-41-7)	ND µg/L	n/a	ND µg/L	n/a	2	
Cadmium (7440-43-9)	ND µg/L	n/a	ND µg/L	n/a	2	
Lead (7439-92-1)	ND µg/L	n/a	ND µg/L	n/a	2	
Mercury (7439-97-6)	ND ng/L	n/a	ND ng/L	n/a	2	
Nickel (7440-02-0)	1.20 µg/L	n/a	0.600 µg/L	n/a	2	
Selenium (7782-49-2)	5.10 µg/L	n/a	2.55 µg/L	n/a	2	
Silver (7440-22-4)	ND µg/L	n/a	ND µg/L	n/a	2	
Thallium (7440-28-0)	0.300 µg/L	n/a	0.150 µg/L	n/a	2	
2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) (1746-01-6)	n/a	n/a	n/a	n/a	0	

Part C - List each pollutant shown in Tables F-2, F-3, and F-4 that you know or have reason to believe is present. See the instructions for additional details and requirements. Complete one table for each outfall.

Pollutant and CAS Number (if available)	Maximum Values (include units)		Average Values (include units)		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite	Grab Sample Taken During 1st 30 Minutes	Flow-weighted Composite		
Bromide (24959-67-9)	ND mg/L	n/a	ND mg/L	n/a	1	
Chlorine, Total Residual	n/a	n/a	n/a	n/a	0	
Color	14.0 ADMI	n/a	14.0 ADMI	n/a	1	
Fecal Coliform	326 CFU/100mL	n/a	326 CFU/100mL	n/a	1	
Fluoride (16984-48-8)	ND mg/L	n/a	ND mg/L	n/a	1	
Nitrate-Nitrite (as N)	0.330 mg/L	n/a	0.330 mg/L	n/a	1	
Nitrogen, Total Organic (as N)	ND mg/L	n/a	ND mg/L	n/a	1	
Phosphorus, Total (7723-14-0)	0.100 mg/L	n/a	0.100 mg/L	n/a	1	
Sulfate (14808-79-8)	358 mg/L	n/a	358 mg/L	n/a	1	
Aluminum, Total (7429-90)	173 µg/L	n/a	173 µg/L	n/a	1	
Barium, Total (7440-39-3)	49.0 µg/L	n/a	49.0 µg/L	n/a	1	
Boron, Total (7440-42-8)	183 µg/L	n/a	183 µg/L	n/a	1	
Cobalt, Total (7440-48-4)	ND µg/L	n/a	ND µg/L	n/a	1	
Iron, Total (7439-89-6)	201 µg/L	n/a	201 µg/L	n/a	1	
Magnesium, Total (7439-96-4)	4962 µg/L	n/a	4962 µg/L	n/a	1	
Molybdenum, Total (7439-98-7)	12.6 µg/L	n/a	12.6 µg/L	n/a	1	
Manganese, Total (7439-96-6)	112 µg/L	n/a	112 µg/L	n/a	1	
Titanium, Total (7440-32-6)	0.0150 mg/L	n/a	0.0150 mg/L	n/a	1	
Antimony, Total (7440-36-0)	1.20 µg/L	n/a	0.600 µg/L	n/a	2	
Arsenic, Total (7440-38-2)	1.70 µg/L	n/a	0.850 µg/L	n/a	2	
Cadmium, Total (7440-43-9)	ND µg/L	n/a	ND µg/L	n/a	2	

Part C - Continued						
Chromium, Total (7440-47-3)	ND µg/L	n/a	ND µg/L	n/a	2	
Copper, Total (7550-50-8)	ND µg/L	n/a	ND µg/L	n/a	2	
Lead, Total (7439-92-1)	ND µg/L	n/a	ND µg/L	n/a	2	
Mercury, Total (7439-97-6)	ND ng/L	n/a	ND ng/L	n/a	2	
Nickel, Total (7440-02-0)	1.20 µg/L	n/a	0.600 µg/L	n/a	2	
Selenium, Total (7782-49-2)	5.10 µg/L	n/a	2.55 µg/L	n/a	2	
Thallium, Total (7440-28-0)	0.300 µg/L	n/a	0.150 µg/L	n/a	2	
Zinc, Total (7440-66-6)	ND µg/L	n/a	ND µg/L	n/a	2	

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow-weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm measured and end of previous measurable rain event	5. Maximum flow rate during rain event (gal/min or specify units)	6. Total flow from rain event (gallons or specify units)
5/27/2015	450	0.33	234	0.012 MGD	0.49 MG
7/6/2016	1440	0.43	14	0.006 MGD	0.40 MG
3/2/2017	3420	0.37	130	0.025 MGD	1.18 MG

7. Provide a description of the method of flow measurement or estimate.

Rational Method

ATTACHMENT A – CURRENT AND FUTURE FACILITY DESCRIPTION

East Kentucky Power Cooperative (EKPC) is a not-for-profit corporation owned by 16 rural Kentucky electric cooperatives. Together EKPC and Owner-Member cooperatives serve more than one million rural Kentuckians in 89 counties. EKPC and its Owner-Members serves some of the most impoverished and lowest income people in rural Kentucky and the United States. The Rural Electrification Act of 1936 and the Owner-Members made this possible in 1941 with the formation of the EKPC, a Generation and Transmission Company. Hugh L. Spurlock Station represents the largest coal-fired generation facility in the fleet.

The H.L. Spurlock Generating Station (Spurlock) is a four-unit coal-fired electric generating facility located on approximately 2,791 acres adjacent to the Ohio River in Maysville, Kentucky. The units with individual generating capacities in megawatts (MW) and dates of service appear below in Table 1:

Table 1 – Spurlock Generating Units

Unit No.	Net Capacity (MW)	Date of Service
Spurlock 1	300	1977
Spurlock 2	510	1981
Gilbert 3	268	2005
Spurlock 4	268	2009

Attachment A supports the KPDES permitting effort as a supplement to the renewal application. It contains a description of the current and future operations, CCR and ELG compliance plan.

A. Effluent Limit Guideline (ELG) Compliance Schedule

EPA, on September 30, 2015, finalized a rule revising the effluent guidelines regulations for the Steam Electric Power Generating Point Source category (40 CFR Part 423). The rule sets the first federal limits on the levels of toxic metals in wastewater that can be discharged from power plants, based on technology improvements in the steam electric power industry since 1982. The ELG rule set compliance deadlines that were to be achieved as soon as possible - beginning November 1, 2018, but also no later than December 31, 2023.

However, on April 25, 2017 EPA postponed the compliance deadlines set forth in the ELG Rule and announced it would likely reconsider aspects of the final rule. On August 11, 2017, in a letter from E. Scott Pruitt, EPA Administrator, EPA announced it is reconsidering the Steam Electric Effluent Limitation Guidelines and will go through rulemaking. Two of the six waste streams are under reconsideration review: bottom ash transport water and flue gas desulfurization (FGD) wastewater stream. Finally, On September 18, 2017, EPA announced its postponement of the ELG compliance deadlines for the two wastestreams under reconsideration in a final rule entitled Postponement of Certain Compliance Dates for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("Postponement Rule"). The Postponement Rule postpones for two years, until November 1, 2020, the earliest compliance

deadlines associated with the best available technology economically achievable (''BAT'') effluent limitations applicable to FGD wastewater and bottom ash transport wastewater to allow EPA time to complete its reconsideration rulemaking. However, the outside compliance deadline of December 31, 2023 has been retained. With the understanding that:

> In light of the compliance date postponements being finalized today, in determining the ''as soon as possible date,'' EPA believes it would be reasonable for permitting authorities to consider the need for a facility to make integrated planning decisions regarding compliance with the requirements for all of the wastestreams currently subject to new, more stringent requirements in the 2015 Rule, as well as the other rules identified in § 423.11(t) to the extent that a facility demonstrates such a need. This could include harmonizing schedules to the extent provided for under the 2015 Rule for meeting the 2015 Rule requirements for fly ash transport water and FGMC wastewater to allow time for a facility to have certainty regarding what their ultimate requirements will be under the steam electric ELGs, as well as the requirements under the other rules listed in § 423.11(t).

82 Fed. Reg at 43498-43499. In light of the Postponement rule and based upon its need to make integrated planning decisions, EKPC proposes the following as the "as soon as possible" ELG compliance dates for Spurlock Station:

- ELG Compliance – December 31, 2023 as soon as possible

The compliance dates are based upon the following justifications:

1. Public Service Commission CPCN Approval
2. Design, procure and install equipment – (a) Addition of a Flue Gas Desulfurization (FGD) WWT equipment, physical / chemical, optimized MVC and (b) Elimination of Bottom Ash Transport Water – conversion of bottom ash system on Units 1 &2 from a 'wet' system to a 'dry' system.

3. Initial commissioning of FGD treatment system to optimize performance – once FGD WWT equipment is installed and shakedown, EKPC will need to evaluate its performance to ensure the design and installation of the equipment are performing as anticipated and is in compliance.

Given the potential for revised ELGs for FGD wastewater and bottom ash transport water, EKPC requests that a reopener be included in the renewed permit to authorize development of a revised compliance approach, compliance schedule, and applicable technology-based discharge limits at such time as the EPA rulemaking and reconsideration are resolved. Likewise, should the self-implementing CCR rule pursuant to the WIIN Act, future EPA CCR reconsideration and 401 KAR 45 / 46 permit program pending litigation in the Franklin Circuit Court affect the closure of Spurlock's surface impoundment (ash pond) for storage and treatment, EKPC requests the opportunity to re-open the KPDES permit for tiered limits, should it be needed and a compliance plan to meet the water quality standards in the receiving stream, the Ohio River.

EKPC understands that, given the timing of this application submittal, ELG compliance remains based on Best Practicable Treatment (BPT) for legacy wastewater until the above referenced as soon as possible compliance dates occur (unless changed through EPA's rule reconsideration).

B. CURRENT OPERATIONS

Spurlock Station currently has 12 outfalls for water intake, process wastewater discharge, storm water discharge, and internal plant outfalls. These outfalls are summarized below in Table 2.

Table 2 – Plant Outfalls

Outfall No.	Description
001	Secondary Lagoon Combined Effluent Discharge to Ohio River
002 (internal to 001)	Unit 1 Cooling Tower Blowdown
003 (internal to 001)	Unit 2 Cooling Tower Blowdown
004 (internal to 001)	Boiler Metal Cleaning Waste
005 (emergency overflow only)	Emergency Material Storage Runoff to Ohio River
006	Storm Water Discharge to Ohio River
007	RO Rejects to Ohio River
008	Landfill Sedimentation Pond Discharge
009	River Water Intake from Ohio River
010 (internal to 001)	Unit 3 Cooling Tower Blowdown
011	Landfill Sedimentation Pond Discharge
012 (internal to 001)	Unit 4 Cooling Tower Blowdown

Spurlock uses three sources of water at the plant. Potable water is supplied by the City of Maysville for drinking, showers, toilets, etc. Domestic wastewater is then returned by a lift station and force main to the City of Maysville for treatment and discharge. Water for plant operations is supplied by a series of 19 operating wells located on the plant site. The third source of water to the plant is the Ohio River. River water is used for cooling purposes for Units 1 – 4.

Cooling Water Systems

The Spurlock units each have a recirculating cooling tower system instead of a once-through system. An open recirculating cooling tower system dissipates heat and permits extensive reuse of water by reducing the amount of makeup water needed from the Ohio River or on-site wells. Circulating water pumps send cooling water through the condenser where it absorbs heat from the low pressure exhaust steam, and then to a mechanical draft cooling tower. The steam condensate is then reused as boiler feed water. The cooling water returned is distributed over the cooling tower where it makes intimate contact with air drawn through the tower by large fans. The primary cooling mechanism in the cooling tower is evaporation, although sensible cooling also occurs, particularly during cold weather. Unit 1 and 2's cooling towers are cross-flow designs while Unit 3 and 4's are counter-flow types. At design ambient wet bulb temperature of 79°F, the cooling towers cool the circulating water to a temperature of 89°F. Cooling tower blowdown is taken from the circulating water after it is cooled by the cooling tower. As noted in the cover letter, the current KPDES permit sets a temperature discharge limit of 95 degrees F as a monthly average and 100 degrees F as a daily maximum. EKPC requests that KDOW grant a daily maximum temperature

limit of 110 degrees F for Outfall 001 in accordance with the ORSANCO standards. Outfall 001 includes the return of cooling water that is discharged back into the Ohio River. Water quality and aquatic life will remain protected by the existing monthly average temperature limits, which take in-stream mixing into account. The requested daily maximum limit is consistent with the discharge limit set by ORSANCO to protect primary contact recreation use of the river so as to prevent scalding.

Spurlock Station's water intake structure resides on the Ohio River, designated as Outfall 009, and includes three 5,000 gallons per minute (gpm) maximum capacity vertical turbine pumps. River water is used for cooling tower makeup. Water pumped from the river is treated in three clarifiers to remove suspended solids prior to use. A polymer chemical (Klaraid CDP1304) is fed to the clarifiers to aid in coagulation and settling of the suspended solids. The sludge which accumulates in the bottom of the clarifiers is blown down to the ash pond. Well water is used as a secondary makeup source for cooling towers 1 and 2. Well water can also be used as a back-up makeup source for cooling towers 3 and 4 if necessary.

The cooling mechanism in a cooling tower, evaporation, concentrates the solids present in the raw water supply. As pure water is evaporated, the minerals in the circulating water remain behind. The term that compares the concentration of makeup water to the circulating water is cycles of concentration. If saturated concentrations of minerals occur, scale formation and fouling of heat transfer surfaces and piping can result. Blowdown is used to regulate cycles of concentration and over-saturation. Blowdown removes a portion of the concentrated circulating water, which is then replaced by fresh makeup water. Fresh make-up water lowers the concentration of dissolved solids in the system.

To increase the allowable cycles of concentration and limit bio-fouling, a number of chemicals are used in the circulating water systems including:

- Depositrol BL5400
- Gengard GN7004
- Spectrus CT1300
- Sodium hypochlorite
- Sulfuric Acid

The chemicals except sulfuric acid and sodium hypochlorite are trade names of products supplied by GE Betz. Safety Data Sheets (SDSs) for these chemicals are included in Attachment F.

Open recirculating cooling systems are subject to fouling by algae and biological slime accumulations. Slime consists of microorganisms such as bacteria, fungi, yeast and protozoa. Zebra mussels can also enter the system with the river water makeup, where they can grow and accumulate. Fouling of surfaces reduces heat transfer and impedes flow. Spectrus CT1300 is a quaternary ammonium biocide used for control of zebra mussels. It is the only chemical used at the plant that is regulated by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Sodium hypochlorite (the active ingredient in household bleach) is an oxidizing biocide that is toxic to most microorganisms at low concentrations even if in contact for a short time. A non-oxidizing biocide is also used periodically to prevent the build-up of resistant microorganisms.

Biocides are slug-fed to the circulating water systems with the blowdown valves closed. This may occur weekly in the winter to as much as three times a week in the summer. The biocide is allowed to dissipate prior to resuming system blowdown. The plant laboratory tests for total residual chlorine (TRC) when using sodium hypochlorite. Normal blowdown operation does not resume until TRC is non-detectable. Testing for the dissipation of non-oxidizing biocides is also performed. Typically, the time required for reaching non-detect levels is less than eight hours. However, the blowdown is typically held for more than twelve hours to be sure biocides are no longer present.

Sulfuric acid is used to reduce the circulating water's alkalinity. The alkalinity is reduced sufficiently to achieve saturation and stability indices that represent non-scaling conditions. Sulfuric acid treatment converts calcium bicarbonate in the water into the much more soluble calcium sulfate.

A polyacrylate dispersant is used as a scale inhibitor. The polymer absorbs onto the crystal structure of scale-forming materials and thus limits crystal growth and scale formation. Finally, a corrosion inhibitor is fed to limit corrosion of steel and copper materials within the circulating water systems by promoting the formation of an adherent metal oxide layer on metal surfaces.

With the treatment chemicals used, the circulating water can be cycled up to a theoretical maximum of eight times prior to discharge as blowdown. Cooling tower blowdown flows by gravity to the primary lagoon. Internal Outfalls 002, 003, 010, and 012 are the cooling tower blowdown streams from units 1, 2, 3, and 4, respectively. As noted above, the procedures used by the facility are designed to ensure that cooling water discharges to the Ohio River from Outfall 001 do not result in adverse impact or toxicity, which is monitored through whole effluent toxicity testing. Toxicity information for treatment chemicals is included in the SDS sheets.

Each recirculating water system is drained, cleaned and inspected annually. The water is drained by gravity to the primary lagoon to empty the cooling tower basins.

Section 316(b) Water Intake Discussion

As noted by KDOW in meetings in 2016 with electric utilities regarding KPDES renewal application expectations, submittal of the rule-related reports described at 40 CFR 122.21(r), and KDOW's formal assessment of Best Technology Available (BTA), will occur during the next KPDES permit cycle following issuance of the pending KPDES permit as the renewal application for Spurlock Station was submitted and pending before October 14, 2014. See 40 CFR 125.98(b)(6). With this supplement, EKPC is o providing KDOW with application information pursuant to 40 CFR 122.21(r)(2) to (8) to allow a final BTA determination for impingement and entrainment to be made as part of this permit renewal.

Spurlock Station employs four cooling towers which would satisfy BTA for impingement mortality (IM) under §125.94(c)(1) of the final 316(b) rule for existing facilities. In addition, Spurlock Station's two passive wedge wire screens each have a maximum design through-screen velocity (TSV) of 0.5 feet per second (fps), and because both screens are typically used have an

effective TSV of less than 0.07 fps. Therefore, the intake screens are considered BTA for impingement mortality (IM) under §125.94(c)(2).

Spurlock Station's 6.19 million gallons per day (MGD) actual intake flow (AIF) for the past three years (2015-2017) is well below the rule's AIF threshold of 125 MGD that would subject it to the rule's requirement for site-specific entrainment mortality (EM) BTA studies under §§122.21(r)(9) through (13). Recognizing that the KDOW is not required to make a determination for EM BTA until the next KPDES permit cycle, EKPC believes the intake should be considered BTA for EM given its use of cooling towers that typically achieves high levels of reduction in cooling water flow and entrainment rates (typically 95 percent or more). In addition, the 1/8 inch wedge wire screen slot size, coupled with the maximum TSV of 0.5 fps and effective TSV of less than 0.07 fps, minimizes the potential for entrainment effects. Finally, the 6.19 MGD AIF is very small relative to flows in the Ohio River, indicating that the population effects of any entrainment losses that may result from operation of the cooling towers are minimal. Accordingly, KDOW should find the intake system meets BTA for impingement and entrainment when it issues its final permit renewal determination.

Well Water and Boiler Water Systems

Well water is used to meet the remainder of the plant's water demand. Most well water (termed "service water") is used directly without treatment, although it is high in iron and manganese. Should well water be used for boiler water make-up, removal of iron and manganese is required.

Boiler makeup water is added to the steam cycle of each unit's boiler to replace water lost in the steam turbine and boiler cycle. Normal losses results from boiler water blowdown, soot blowing, feed water deaeration, and steam seal leaks. Boiler blowdown is used to limit the build-up of total dissolved and suspended solids in the boiler water. Impurities in the boiler water can lead to corrosion and deposits that results in boiler tube over-heating and boiler tube failures. For high pressure sub-critical boilers, treated boiler makeup water must be extremely pure with total dissolved solids (TDS) at less than one part per million (ppm). Boiler water blowdown from the boilers after cooling proceeds to the plant drains system and then into the primary lagoon.

Treatment of well water for boiler makeup begins at the water pre-treatment building. Sodium hypochlorite is fed to the chlorination tank to precipitate iron and manganese from solution and for microorganism control. The precipitates and other suspended solids are then filtered from solution using gravity greensand filters. The greensand filter media also oxidizes and removes any remaining dissolved iron and manganese. The water then passes through activated carbon filters to remove the chlorine residual and organic debris before transfer to the water service building. Backwash water used to clean the greensand and activated carbon filters is sent to the ash pond as is spent potassium permanganate solution used to regenerate the greensand filter media.

Treatment by reverse osmosis (RO) is the next stage of treatment. EKPC has two RO systems. One unit is in service while the other is on standby. Both RO units cannot be run simultaneously since they share the same RO feed and permeate (treated water) systems. An RO unit has a number of semi-permeable membranes through which pure water under high pressure can diffuse. The flux rate across the membranes permits about two-thirds of the water to be recovered as treated

water. The remaining one-third of the original flow is sent to drain as rejects. Higher recovery rates will result in scaling and fouling of RO membranes. An anti-scalant chemical is used in the RO feed water to enhance the percentage of treated water that is recovered. The RO rejects are discharged directly to the Ohio River through Outfall 007. For routine operations, the two RO systems use the same discharge piping. The RO membranes require cleaning every 3-5 years. During cleaning, the wastewater is directed from the neutralization basin to the ash pond.

A single pass RO will reject approximately 90% of the TDS in the incoming water. A double pass RO will increase salt rejection to about 98%. Therefore, it is necessary to further treat the RO product water from the RO units using ion exchange. Demineralizer trains consisting of cation, anion, and mixed bed ion exchange units remove the remainder of the dissolved salts / solids from the water. In a cation unit, hydrogen ions on the ion exchange resin are exchanged for cations in the water such as calcium, magnesium and sodium. The cation exchanger converts the salts to their corresponding acids. In an anion unit, hydroxyl ions (OH^-) are exchanged for anions including sulfate, chloride, bicarbonate, and others. The third ion exchange unit in the train, a mixed bed unit, contains a blend of cation and anion exchange resin to continue the ion exchange process to further polish the treated water. The final treated water is suitable for boiler makeup use and is stored in a 500,000 gallon tank adjacent to the water services building.

The ion exchange units eventually become exhausted and must be regenerated to replenish their supplies of hydrogen and hydroxyl ions. Sulfuric acid (H_2SO_4) and caustic (NaOH) are used for this purpose for the cation and anion resins, respectively. Regeneration of an ion exchange unit includes backwash, chemical addition, slow rinse and fast rinse. The ion exchange unit can then be returned to service. The wastewater generated by the regeneration process is combined in a neutralization basin and neutralized before going to the ash pond. Ultimately this wastewater is discharged from Outfall 001.

Metal Cleaning Wastewater and Other Well Water Uses

Despite efforts to maintain boiler water purity, tube deposits and scale will gradually accumulate over time. To remove the deposits, a boiler cleaning every five to ten years is performed, depending on the rate of deposition and accumulation. To perform a boiler cleaning, generally, the following steps are followed:

- Fill Boiler
- Inject Acid
- Acid Soak
- Acid Drain
- Fill Boiler
- Drain Boiler (Acid Rinse)
- Fill Boiler
- Inject Citric Acid
- Citric Acid Drain
- Neutralization Boil-out
- Neutralization Drain
- Treated Water Fill

- Treated Water Drain
- Treated Water Fill

A boiler chemical cleaning creates both metal-containing acidic and caustic wastewater. The wastewater is combined in temporary "frac" tank(s). The wastewater pH is adjusted and soluble metals precipitated and sludge allowed to settle. The neutralized metal cleaning waste is then tested to ensure compliance with effluent guidelines for metal cleaning wastes, and drained to the ash pond and secondary lagoon, through internal Outfall 004. The metal-containing solids are characterized and taken to an off-site permitted solid-waste landfill for disposal. Additionally, should copper be present in the tube analysis, a bromate step may be used either ahead or after or both, the acid steps noted above. The waste from this copper step is collected in a separate frac tank, treated to meet discharge limits ahead of decanting water to the ash pond. The solids are separated, characterized, just as the acid step, and taken to an off-permit site permitted for solid-waste for disposal.

Well water (service water) has many other uses at Spurlock, including:

- Makeup to the wet flue gas desulfurization (FGD) systems for Units 1 and 2.
- Hose stations for wash down and cleanup.
- Circulating water pump bearing cooling
- Boiler blowdown cooling
- Bed ash and fly ash conditioning for Units 3 and 4
- Fly ash conditioning for Units 1 and 2.
- Dust suppression
- Chemical dilution
- Pyrites hopper flushing
- Air heater wash
- Ash hopper seal troughs (Units 1 and 2)
- Ash hopper observation window flushing.
- Other non-chemical metal cleaning

Wastewater from many of these operations ultimately drains into the secondary lagoon where it mixes with other process wastewater and storm water, before being discharged through Outfall 001. Wastewater from the remainder of these operations (ash conditioning and dust suppression) is either entrained in the ash or lost to evaporation. Wastewater from the air heater flushes is sent to the coal pile storage runoff holding pond utilizing temporary piping. Below in Table 3 is a summary of non-chemical metal cleaning wastes and current methods of collection/management.

Table 3 – Non-Chemical Metal Cleaning Wastes

Title	Description	Current Management	Permitted Previously - Metal Cleaning Waste or Low Volume Waste?
U1 Air Heater Cleaning	Use two high pressure heads and 2 extra fire hoses	Air heater washes (all units) collected in bottom of system and gravity flows to absorbers sumps. The pipeline is above ground black HPDE that is "temporary" since it sits on the ground with sections taken out when not in use. The flow is taken from the sump to the FGD auxiliary tank and then to the coal pile runoff pond.	Low Volume
U2 Air Heater Cleaning	One high pressure head on top and 1 under. Then two other hoses	Same as Unit 1.	Low Volume
U3 Air Heater Cleaning		Same as Unit 1.	Low Volume
U4 Air Heater Cleaning		Same as Unit 1.	Low Volume
U1 Boiler Fireside Tube Cleaning	Includes all sections of the boiler	Boiler fireside tube cleaning, Units 1 and 2, (deslag) uses sluice lines and vacuum trucks	Low Volume
U2 Boiler Fireside Tube Cleaning	Includes all sections of the boiler	Same as Unit 1.	Low Volume
U1 Boiler Tube Cleaning		Unit's 1 - 4 boiler tube cleaning goes to the ash pond using the sluice piping.	Low Volume
U2, 3, and 4 Boiler Tube Cleaning		Same as Unit 1.	Low Volume
U1 Draft Fan Cleaning		Unit 1 & 2 ID Fan Cleanings-wash outside and includes a carbon steel housing, wash water goes to plant drains to the primary lagoon.	Low Volume
U2 Draft Fan Cleaning		Same as Unit 1.	Low Volume
U1 Precipitator Wash		Previous washes have utilized temporary HDPE piping and pumped to the Ash Pond. Precip washes are infrequent since they use vacuuming but need to be able to do this as needed.	Low Volume
U2 Precipitator Wash		Same as Unit 1.	Low Volume

As discussed above, NCMCWs are currently managed and treated in the coal pile runoff pond, ash pond, and then the secondary treatment lagoon pursuant to the long established low volume waste provisions of the Jordan Memorandum. EKPC proposes that low volume waste approach continue under the re-issued permit. Ultimately, after ash pond closure, the NCMCWs would receive

comparable treatment in the water mass balance pond, where they should continue to be treated as low volume wastes consistent with the longstanding permitting approach for NCMCWs. Accordingly, EKPC believes that NCMCW should be categorized and regulated as low volume wastes (per 40 CFR 423). The permit should generally define NCMCW sources to include wastewater generated from water-only washes or final rinses after chemical cleaning of metal process equipment. Permitting the NCMCW consistent with low volume waste BPT standards for TSS (100 mg/L daily maximum/30 mg/L monthly average), O&G (20/15 mg/L), and pH at the final outfall is appropriate based on historical permitting for each facility and is supported by EPA guidance.

Units 1 – 4 Drainage System and Coal Pile Runoff

The plant drains system collects wastewater from boiler and turbine drains, other equipment drains, boiler blowdown, plant floor drains, and miscellaneous drains. The wastewater then flows by gravity to the primary lagoon. As noted above, cooling tower blowdown is also sent to the primary lagoon. The primary lagoon (750,000 gallons capacity) provides a means to blend wastewater, settle suspended solids, skim oil, and permit isolation, if necessary, for an abnormal spill or waste material.

The secondary lagoon (1.5 million gallons capacity) receives effluent from the primary lagoon. The secondary lagoon also receives water from the ash pond. The secondary lagoon provides additional settling of suspended solids. The ash water pump house is located adjacent to the secondary lagoon. The two ash water pumps take suction from the lagoon to provide water to sluice bottom ash from units 1 and 2 to the ash pond. The ash water pump house also houses the diesel engine driven and electric motor driven fire pumps. The fire pumps can provide additional water for firefighting, if required. Excess water from the secondary lagoon discharges to the Ohio River through Outfall 001.

The coal yard is graded and diked to retain storm water runoff for treatment. The storm water flows by ditches to the coal pile runoff holding pond. The coal pile runoff holding pond discharges to the ash pond. In an emergency, the coal pile runoff pond can overflow through Outfall 005 to the Ohio River. The coal pile runoff pond is designed to handle all runoff from the facility but may overflow to Outfall 005 for excessive rainfall events.

Solid materials which settle and accumulate in the coal pile runoff pond, and primary and secondary lagoons are removed by dredging when required. Blowdown from units 1 and 2 wet FGD systems is piped to the auxiliary tank and is pumped to the ash pond.

An anti-scalant is added to the oxidation air to the unit 1 and 2 wet FGD systems. The rate of anti-scalant feed is adjusted based upon a scaling analysis of the scrubber limestone slurry. An anti-foam agent is utilized during start-up of the unit 1 and 2 wet FGD systems. Also a coagulant is used at the scrubber purge tanks to help settle solids from the systems.

Bottom ash from units 1 and 2 is sluiced as a slurry to the ash pond. Clarifier sludge blowdown, material storage pile storm water runoff, and water treatment system wastewater are also sent to the ash pond. Oil/water separation and solids settling occur in the ash pond before it discharges to

the secondary lagoon. The ash pond is periodically dredged to remove a portion of the settled solids. The material is stacked inside and at the surface of the ash pond and allowed to dewater prior to disposal.

Fly ash from the four units and bed ash from units 3 and 4 are handled dry and taken by 50-ton capacity trucks to the permitted landfill on-site for disposal. If needed, fly ash from Units 1 and 2 can be sluiced to the ash pond if ash transfer station is not operational. Service water is mixed with the fly ash for conditioning and to limit dusting. The landfill is located 1.5 miles straight-line distance southwest of the main plant, or 2.8 miles by the dedicated haul road which connects the main plant site to the coal combustion residuals landfill.

Because most fly ash from the four units is trucked dry to the landfill, there is little potential for adverse impact on wastewater discharges related to ammonia slip from operation of the selective catalytic reduction (SCR) systems for nitrogen oxide (NO_x) emissions control on units 1 and 2 or the selective non-catalytic reduction (SNCR) systems employed on units 3 and 4. Monitoring data included in Form C for ammonia-nitrogen for Outfall 001 confirms that ash stored in the ash pond and FGD blowdown have not resulted in ammonia discharge concerns. Based upon this data, EKPC requests that the renewal permit <u>not</u> require continuation of an ammonia monitoring plan.

Storm water from roof drains from the four units is collected by storm sewer. Roof drains from other buildings drain to grade. Main plant roof drains, substation area runoff, and general area runoff enters the Ohio River at Outfall 006.

A containment pond is anticipated to be constructed in 2017 adjacent to the anhydrous ammonia tank farm. Anhydrous ammonia is used in the SCR and SNCR systems to control nitrogen oxide (NOx) emissions in units 1, 2, 3, and 4. The storm water that collected in the containment pond will be tested for ammonia. If found to be contaminated with ammonia, plans are to truck the water off the plant site proper. Clean storm water will be pumped to the secondary lagoons.

Storm water runoff areas that do not drain to the ash pond out Outfall 001 will be maintained by use of storm water Best Management Practices (BMPs). The BMPs are installed, inspected, and maintained in accordance with the facility's BMP Plan, which is currently being updated.

<u>CCR Landfill Storm Water Runoff</u>

Leachate and underground collection systems and storm water from the CCR landfill site are collected in sedimentation ponds. The existing section of the landfill drains into pond 1 which, after settlement of suspended solids, discharges to Lawrence Creek as Outfall 008.

The construction of pond 1 has allowed four small existing sedimentation ponds to be closed.

Portions of the existing landfill area drain into sediment pond 2. The storm water runoff from the ash haul road is controlled by BMPs with some portions of the road also draining to pond 2. Following solids settling, pond 2 drains to Lawrence Creek at Outfall 011.

Refer to the Spurlock Water Mass Balance drawings for flow rates and additional details.

C. FUTURE OPERATIONS

As a result of the recent 2015 promulgation by EPA of effluent limitations guidelines for the steam electric point source category, EKPC is planning significant changes to wastewater management at Spurlock Station during the term of the renewal permit. However, on April 12, 2017, EPA began reconsideration of ELG in light of the petitions. On August 11, 2017, EPA responded back to the Courts requesting that the Courts hold the litigation in abeyance and in the public interest to conduct a rulemaking to potentially revise the new, more stringent Best Available Technology Economically Achievable effluent limitations and Pretreatment Standards for Existing Sources in the 2015 rule that apply to bottom ash transport water and flue gas desulfurization wastewater.

EKPC struggles to delineate numeric ELG limitations and compliance points, given the uncertainty the Postponement Rule and EPA Rulemaking present for bottom ash and FGD waste water streams. We cannot fully delineate the impacts to water and our discharges given the uncertainty of more or less stringent numeric water quality limitations. Nevertheless, based upon best estimates of ELG and CCR Rule developments, set forth below is a discussion of anticipated future operational changes that will occur during the permit term.

Vacuum Truck Ash Handling Project (Planned for 2018)

EKPC plans to add a vacuum truck ash handling station near the northwest corner of the coal pile (in Drainage Area 00A) in 2018. This station will be designed to manage CCR material that are removed via vacuum trucks such that ash haul trucks, will collect the materials and transport the ash to the landfill. The ash handling station will be a concrete tank and will contain storm water that falls within its perimeter. Under normal operation, accumulated storm water will be mixed with dry CCR materials and transported to the landfill and will not result in additional water discharge. Fogging equipment and the addition of water will be used to minimize dust and achieve suitable moisture content before transportation to the landfill. The system will also incorporate a wheel wash system to minimize tracking of ash onto plant roadways.

Anhydrous Ammonia Tank Farm Storm Water Management

EKPC is adding a lined containment system to contain accidently released ammonia and fogging water from the anhydrous ammonia tank area in the summer of 2017. The existing fogging system over the ammonia tanks will be expanded to help capture the ammonia in the event of a release. EKPC will test storm water runoff that collects in the basin for ammonia. If ammonia is found, EKPC plans to truck the water off the plant site proper. Otherwise the water will be drained to one of the secondary lagoons which ultimately will be discharged through Outfall 001. Currently the storm water runoff from the ammonia tank area goes out Outfall 006.

Effluent Limitations Guidelines, Surface Water Quality Standards, and CCR Rule Compliance Projects

EKPC is moving forward with design planning for anticipated ELG requirements as required by the Postponement rule, which includes elimination of ash transport water and treatment of FGD

blowdown wastewater. Ash transport water elimination is also directly tied to anticipated closure of the ash pond under the Coal Combustion Residuals ("CCR") Rule. While no regulatory deadlines for ash pond closure have been triggered at this time, EKPC anticipates that ash pond closure will potentially occur within the term of the renewed KPDES permit pursuant to the EPA CCR Rule, and requests that dewatering be authorized by the renewed permit. Similarly, EKPC anticipates constructing a physical/chemical treatment plant for FGD wastewater that would be a component of the ultimate ELG compliance and will also serve to ensure FGD wastewater discharges do not cause or contribute to an instream exceedance of applicable water quality standards. A lined water mass balance pond will replace the current ash pond in the overall water mass balance for Spurlock Station. However, should the EPA reconsideration of the ELG Rule change any or all of the effluent numeric limitations or averaging periods, EKPC would have to re-visit the engineering, equipment, procurement and ultimately the compliance plan.

Plans for the physical/chemical wastewater treatment plant and water mass balance pond are under development, but will also necessarily depend on the EPA's final ELG and CCR Rule reconsideration and rulemaking processes. Accordingly, EKPC requests a compliance schedule be established in the permit for future compliance with any first-time WQBELs that extends through the permit term but which shall be re-opened to establish specific compliance deadlines for any WQBELs after EPA's ELG reconsideration is completed.

CCR Rule Compliance/Ash Pond Dewatering and Closure

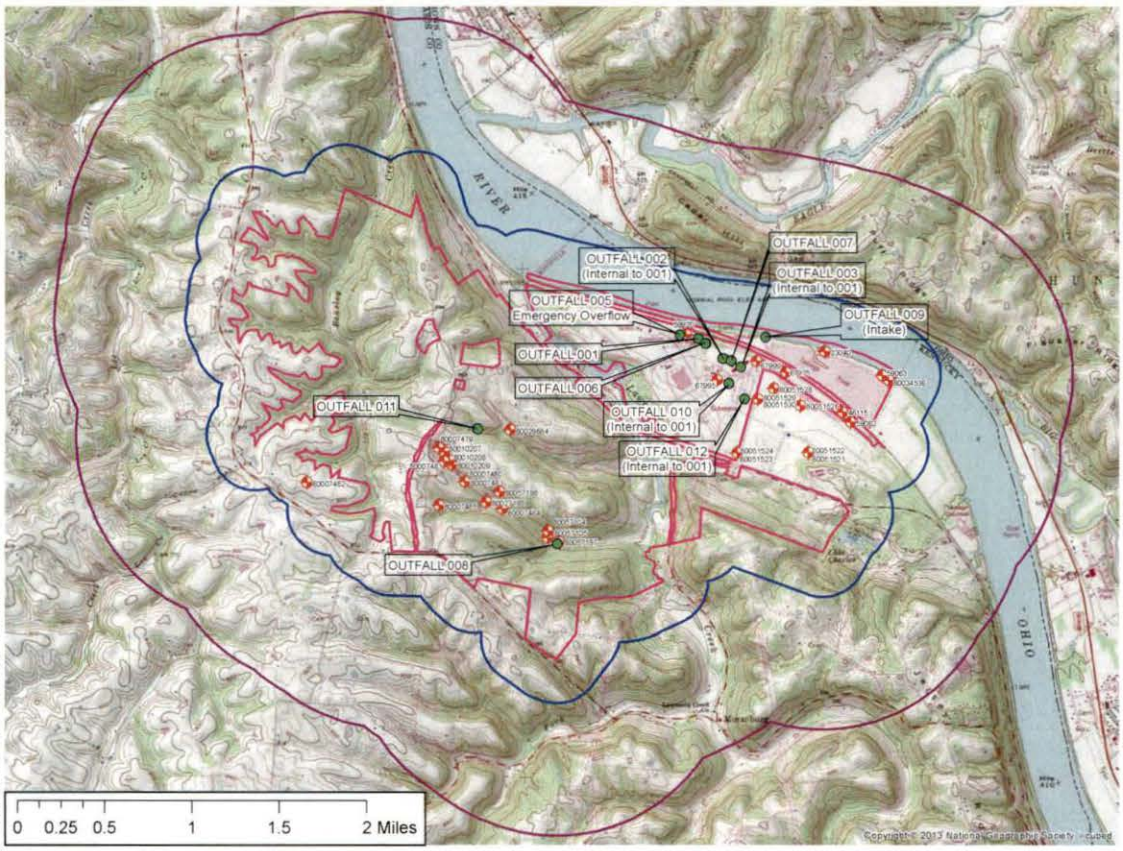
As set forth above, during the term of the renewal permit, EKPC plans to dewater and close the current ash pond. The plan is to close the unit with ash hauled by truck to EKPC's on-site permitted CCR landfill. EKPC plans to dewater in accordance with its existing KPDES permit via the primary and secondary lagoons through Outfall 001.

Landfill Modifications

EKPC is evaluating plans for a new CCR landfill called Peg's Hill adjacent to H.L. Spurlock's existing special waste landfill. The new CCR landfill may require the relocation of the existing sedimentation pond that discharges into Outfall 011. Detailed plans will be submitted to KDOW for consideration as a basis of KPDES permit modification at a later date. EKPC is evaluating future final capping and temporary cover efforts on the active landfill area.

Best Management Practices (BMPs)

Storm water from clay borrow areas, and the area drained by Outfall 006 is controlled and maintained by use of storm water BMPs. The BMPs are installed, inspected, and maintained in accordance with the facility's BMP Plan, which is currently being updated. In general, the BMPs include sediment control practices and practices to minimize the potential for BMP Pollutants to be discharged in storm water runoff. EKPC requests that the use and implementation of BMPs be required in lieu of any numeric discharge limitations on the storm water discharges.



H.L. Spurlock Power Station

- Wells
- Outfall Location
- Property Boundary
- 1/4 mile buffer
- 1 mile buffer

Notes:
1. CONFIDENTIAL ATTORNEY WORK PRODUCT
2. No springs identified within quarter mile of property boundary.
3. This map presents land cover imagery for the world and detailed topographic maps for the United States 1:24,000-scale (7.5 minute USGS quadrangle map) http://goto.arcgisonline.com/maps/USA_Topo_Maps

Stanley Consultants INC.

May 2017

Facility Location Map

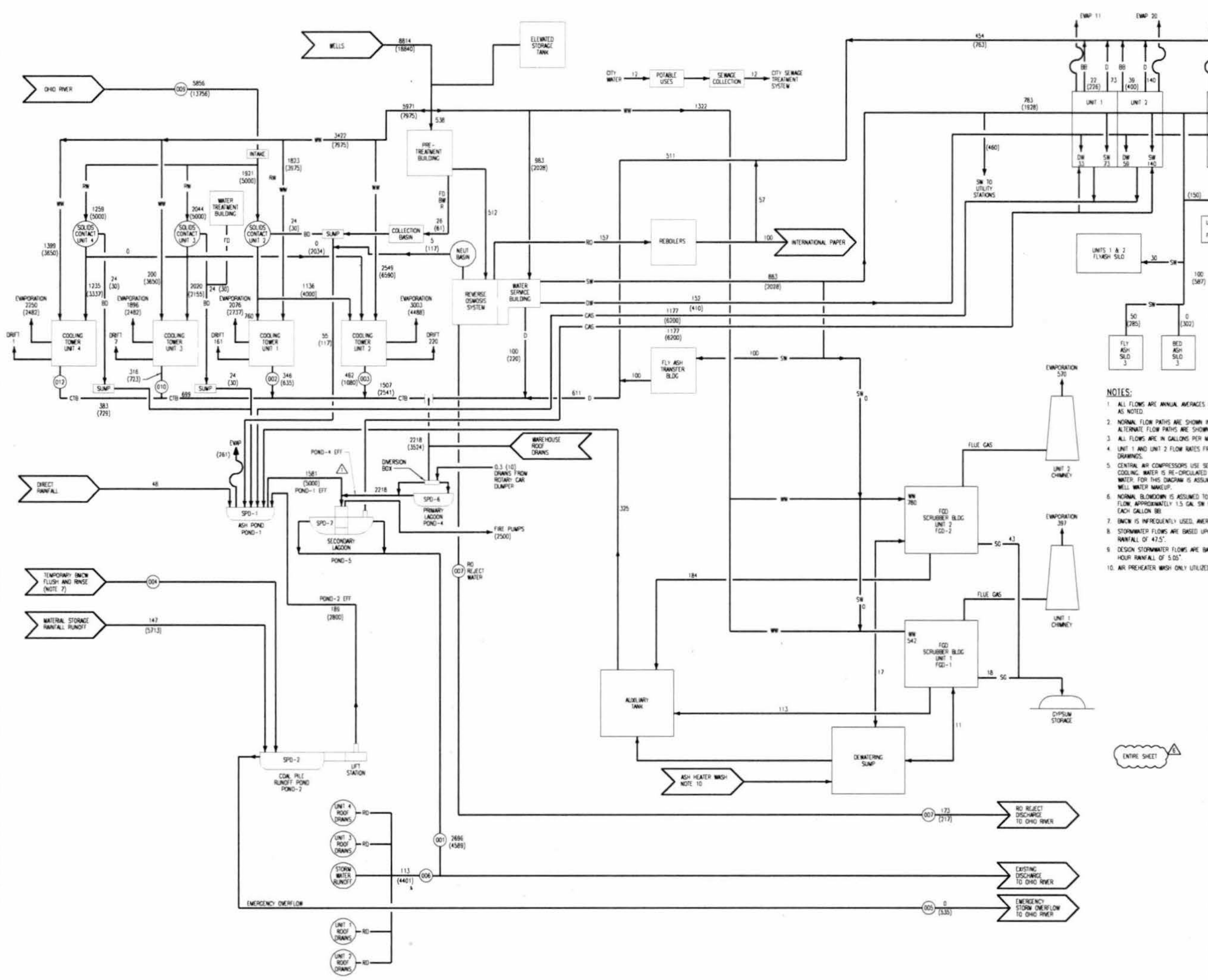
EAST KENTUCKY POWER COOPERATIVE, INC.
H.L. Spurlock Power Station
1301 West Second Street
Maysville, KY 41056

REV	No	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Issued for Permit Submittal	5/25/17	AB	BC	TM

EAST KENTUCKY POWER COOPERATIVE

27173.01.00

REV
0



NOTES:

1. ALL FLOWS ARE ANNUAL AVERAGES IN GPM EXCEPT AS NOTED.
2. NORMAL FLOW PATHS ARE SHOWN IN SOLID LINES. ALTERNATE FLOW PATHS ARE SHOWN IN DASHED LINES.
3. ALL FLOWS ARE IN GALLONS PER MINUTE.
4. UNIT 1 AND UNIT 2 FLOW RATES FROM EXISTING PLANT DRAWINGS.
5. CENTRAL AIR COMPRESSORS USE SERVICE WATER FOR COOLING. WATER IS RE-CIRCULATED TO UNIT 2 CIRCULATING WATER. FOR THIS DIAGRAM IS ASSUMED TO BE PORTION OF WELL WATER MAKEUP.
6. NORMAL BLOWDOWN IS ASSUMED TO BE 1% OF MAIN STEAM FLOW. APPROXIMATELY 1.5 GAL SW REQUIRED TO COOL EACH GALLON BB.
7. BMCW IS INFREQUENTLY USED, AVERAGE <1 DAY PER YEAR.
8. STORMWATER FLOWS ARE BASED UPON AVERAGE YEARLY RAINFALL OF 47.5".
9. DESIGN STORMWATER FLOWS ARE BASED UPON 25 YEAR, 24 HOUR RAINFALL OF 5.05".
10. AIR PREHEATER WASH ONLY UTILIZED DURING UNIT OUTAGES.

LEGEND:

- BB — BOILER BLOWDOWN
- BMCW — BOILER METAL CLEANING WASTE
- BD — BLOW DOWN
- CAS — COMBINED ASH SLUICE
- CTB — COOLING TOWER BLOWDOWN
- D — DRAINS
- DW — DEMIN WATER
- F — FILTRATE
- PW — POTABLE WATER SUPPLIED BY CITY OF MAYSVILLE
- RW — RIVER WATER
- RD — ROOF DRAINS
- SCRBP SCRUBBER PURGE
- SW — SERVICE WATER
- SG — SLUDGE
- WW — WELL WATER
- ( ) — DESIGN FLOW
- (0XX) — KPDES OUTFALL NUMBER

ENTIRE SHEET 6

NO	REVISIONS	DWN	APVD	APVD	DATE
6	[illegible]	SLR	LDR	LDR	7-23-17
5	[illegible]	KYU	LAS	LAS	8-29-12
4	[illegible]	KYU	LAS	LAS	8-13-12
3	UPDATED FOR KPDES PERMIT	CRG	LAS	LAS	4-23-12
2	[illegible]	BWD	TJW	LAS	6-01-09
1	UPDATED UNIT 4 COOLING TOWER FLOWS	KNR	LAS	LAS	1-21-09

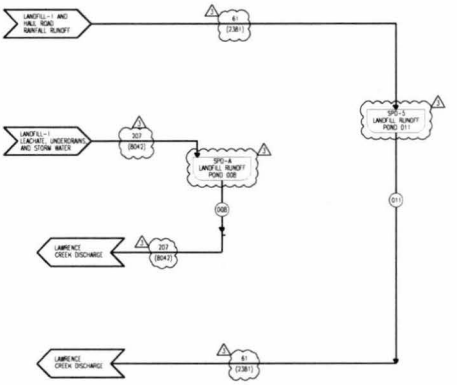
Stanley Consultants INC.

EAST KENTUCKY POWER COOPERATIVE

SPURLOCK STATION
WATER MASS BALANCE

DESIGNED L.A. SHELL
DRAWN K.S. HENNEMAN
CHECKED L.A. SHELL
APPROVED S.J. SCHEBLER
APPROVED L.A. SHELL
DATE DECEMBER 31, 2008

SCALE: NONE
NO. 23908
M160
REV 6



LEGEND:

(XXX) NPDES PERMIT OUTFALL NUMBER

NOTES:

1. ALL FLOWS ARE IN GALLONS PER MINUTE.
2. FLOWS ARE AVERAGE YEARLY RAINFALL RUNOFF OF 42.5". FLOWS ASSUME NO WATER LOST BY EVAPORATION.
3. DESIGN STORMWATER FLOWS ARE BASED UPON 25 YEAR, 24 HOUR RAINFALL OF 5.05"

PRELIMINARY ISSUE
FOR REVIEW
NOT FOR CONSTRUCTION
04-21-17

NO	REVISIONS	DWN	APVD	APVD	DATE
2	GENERAL REVISION	SLP		LSP	PENDING
1	REVISED PER EKPC	MNJ	LMS	LMC	8-23-13
0	ISSUED FOR NPDES PERMIT	MNJ	LMS	LMC	8-13-13

Stanley Consultants INC.

EAST KENTUCKY POWER COOPERATIVE

SPURLOCK STATION
LANDFILL WATER MASS BALANCE

DESIGNED LA SHELL
DRAWN S.S. HEMINGWAY
CHECKED LA SHELL
APPROVED SJ. SCHEULER
APPROVED LA SHELL
DATE APRIL 26, 2013

SCALE: NONE
NO. 33608
M160A
REV. 3

East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140022

Sample Date/Time: Wednesday, January 22, 2014 19:13:41
Sample Description:
Batch ID:
Autosampler Position: 28
Sample Prep Volume (mL):
Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌜	**Be**	9.01	**0.11**	ug/L	6.46	537	50
⌞>	**Sc**	44.96		ug/L		912550	870254
⌜	**Ag**	106.91	**0.05**	ug/L	5.05	1017	695
|>	**In**	114.90		ug/L		1128500	1551011
⌞	**Sb**	120.90	**1.19**	ug/L	2.46	11053	361
⌜	**Tl**	204.97	**0.76**	ug/L	1.05	23651	410
|	**Pb**	207.98	**0.78**	ug/L	1.09	26628	859
⌞>	**Bi**	208.98		ug/L		737684	1079304
⌜	**Cr**	51.94	**3.77**	ug/L	3.21	2196	36
⌞>	**In-1**	114.90		ug/L		27076	38193
⌜	**Zn**	65.93	**11.71**	ug/L	1.07	1523	64
|	**As**	74.92	**14.49**	ug/L	2.29	784	3
|	**Se**	77.92	**18.03**	ug/L	2.73	86	4
|>	**Y**	88.91		ug/L		24810	29971
|	**Ni**	59.93	**7.96**	ug/L	2.63	4789	30
|	**Cu**	62.93	**4.29**	ug/L	2.71	6569	165
⌞	**Cd**	110.90	**0.24**	ug/L	18.83	62	7

East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140095

Sample Date/Time: Tuesday, March 11, 2014 22:43:06

Sample Description: Spurlock Outfall 001 03-05-2014

Batch ID: 20140310-DMR-1

Autosampler Position: 34

Sample Prep Volume (mL):

Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌈	**Be**	9.01	**0.12**	ug/L	3.75	1353	125
|>	**Sc**	44.96		ug/L		1814845	795029
⌈	**Ag**	106.91	**0.02**	ug/L	122.06	637	430
|>	**In**	114.90		ug/L		2627796	2524033
|	**Sb**	120.90	**0.85**	ug/L	1.22	11668	312
⌈	**Tl**	204.97	**0.78**	ug/L	1.09	32435	1421
|	**Pb**	207.98	**1.40**	ug/L	0.99	66011	2220
|>	**Bi**	208.98		ug/L		1725863	1894660
⌈	**Cr**	51.94	**4.33**	ug/L	1.07	3387	288
|>	**In-1**	114.90		ug/L		57367	67029
⌈	**Zn**	65.93	**10.09**	ug/L	1.58	2005	145
|	**As**	74.92	**13.80**	ug/L	3.88	1113	8
|	**Se**	77.92	**10.18**	ug/L	9.93	75	4
|>	**Y**	88.91		ug/L		52835	53469
|	**Ni**	59.93	**8.79**	ug/L	0.39	6260	85
|	**Cu**	62.93	**3.75**	ug/L	2.31	7007	320
|	**Cd**	110.90	**0.19**	ug/L	3.92	71	15

East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140097

Sample Date/Time: Tuesday, March 11, 2014 23:11:42

Sample Description: Spurlock Outfall 001 03/06/2014

Batch ID: 20140310-DMR-1

Autosampler Position: 35

Sample Prep Volume (mL):

Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌈	**Be**	9.01	**0.07**	ug/L	4.73	960	125
|>	**Sc**	44.96		ug/L		1890921	795029
⌈	**Ag**	106.91	**0.07**	ug/L	2.81	1165	430
|>	**In**	114.90		ug/L		2760608	2524033
⌊	**Sb**	120.90	**0.72**	ug/L	2.72	10403	312
⌈	**Tl**	204.97	**0.43**	ug/L	0.67	19213	1421
|	**Pb**	207.98	**0.70**	ug/L	0.81	35968	2220
|>	**Bi**	208.98		ug/L		1813165	1894660
⌈	**Cr**	51.94	**3.96**	ug/L	2.52	3315	288
|>	**In-1**	114.90		ug/L		61004	67029
⌈	**Zn**	65.93	**6.05**	ug/L	2.76	1348	145
|	**As**	74.92	**14.02**	ug/L	3.66	1209	8
|	**Se**	77.92	**3.86**	ug/L	6.03	34	4
|>	**Y**	88.91		ug/L		56499	53469
|	**Ni**	59.93	**4.19**	ug/L	2.41	3236	85
|	**Cu**	62.93	**3.57**	ug/L	2.49	7150	320
⌊	**Cd**	110.90	**0.10**	ug/L	8.77	45	15

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy Cooperative

Report Date: Wednesday, May 21, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/11/2014
Permit Number:	KY0022250	Sample Collection Time:	6:37:00 AM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-06-30		

EKPC - Central Laboratory Analyses — Lab Identification #: 140155

Sample Received Date:	4/11/2014	Sample Receipt Temperature (°C):	1.9
Sample Received Time:	7:17:00 AM	Sample Received By:	LR

Parameter		Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals											
Low Level Mercury		17.2	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/11/2014	4/28/2014	2:02 PM	EH
Antimony, Total		1.7	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Arsenic, Total		11.6	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Beryllium, Total	<	1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Cadmium, Total		0.9	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Chromium, Total		4.5	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Copper, Total		7.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Lead, Total		1.2	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Nickel, Total		19.3	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Selenium, Total		32.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Silver, Total	<	1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Thallium, Total		2.2	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Zinc, Total		13.7	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:55	EH
Metals, Total		0.094	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	4/14/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	7:30:00 AM	Sample Received By:	JW

Parameter		Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total		0.006	mg/L	0.002	0.003	E335.4 R1.0-1993			4/16/2014	15:03	SRC
Phenolics, Total	<	0.050	mL/L	0.006	0.05	E420.4			4/16/2014	16:11	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by: [signature] Chemist   [signature: Tim Yates] QA/QC Chemist

EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, August 05, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/10/2014
Permit Number:	KY0022250	Sample Collection Time:	12:20:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-09-30		

EKPC - Central Laboratory Analyses — Lab Identification #: 140235

Sample Received Date:	7/11/2014	Sample Receipt Temperature (°C):	2.2
Sample Received Time:	2:30:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	32.8	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/11/2014	7/17/2014	2:03 PM	EH
Antimony, Total	1.3	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Arsenic, Total	8.3	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Beryllium, Total	1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Cadmium, Total	0.7	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Chromium, Total	1.9	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Copper, Total	4.8	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Nickel, Total	21.6	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Selenium, Total	39.2	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Thallium, Total	2.3	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:24	JD/EH
Metals, Total	0.081	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	7/17/2014	Sample Receipt Temperature (°C):	3.6
Sample Received Time:	12:09:00 PM	Sample Received By:	KK

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			7/23/2014	10:45	SRC
Phenolics, Total	< 0.05	mL/L	0.006	0.05	E420.4			7/24/2014	14:26	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, October 30, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/1/2014
Permit Number:	KY0022250	Sample Collection Time:	12:52:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	MW
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-12-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 140342**

Sample Received Date: 10/6/2014 Sample Receipt Temperature (°C): 3.8
Sample Received Time: 12:27:00 PM Sample Received By: JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	18.4	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/6/2014	10/22/2014	1:04 PM	EH
Antimony, Total	1.4	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Arsenic, Total	13.5	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Beryllium, Total	1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Cadmium, Total	0.5	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Chromium, Total	3.1	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Copper, Total	6.6	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Nickel, Total	17.2	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Selenium, Total	21.4	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Thallium, Total	1.8	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	10:40 AM	EH
Metals, Total	0.066	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date: 10/9/2014 Sample Receipt Temperature (°C): 2.2
Sample Received Time: 2:08:00 PM Sample Received By: KM

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			10/13/2014	11:00 AM	SRC
Phenolics, Total	< 0.050	mg/L	0.006	0.05	E420.4			10/16/2014	11:19 AM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

MLI# 014038630

Approved by:

Chemist

QA/QC Chemist

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East Kentucky Power Cooperative
A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

SHADED AREA FOR ANALYICAL LAB USE ONLY EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST Please Print Legibly

Station:	Send Results to:	Compliance Monitoring
East Kentucky Power Cooperative	Eric Hamilton	Yes
H.L. Spurlock Station	Chemist	Samples Chlorinated
1301 West Second Street	Email/Phone:	No
Maysville, KY 41056	eric.hamilton@ekpc.coop	KPDES Permit #
Method of shipment	(859)745-9403	KY0022250
Central Lab	Collected by (Signature):	Mark Wilhite
LAB NOTES _____ Date Shipped: _____		

Laboratory Sample ID#	COLLECTION DATE	COLLECTION TIME (24 HR)	SAMPLE DESCRIPTION:	SAMPLE ANALYSIS REQUESTED:	Sample Analysis Method:	Sample Type: (Grab or Comp)	Field Data pH S.U.	Field Data Temp. °F	Container Type	Container Volume (mL)	# OF CONTAINERS	MATRIX CODE (See Lower Left)	Preservative Code (See Lower Left)
	10-1-14	1252	**S-001 Lagoon**	Total Recoverable Metals	EPA 200.8	Grab	xxxxx	xxxxx	Plastic	250	1	WW	HNO_3
				Low Level Mercury	EPA 245.7	Grab	xxxxx	xxxxx	Glass	500	1	WW	ICE
140342	10-1-14	1257	**Field Blank**	Low Level Mercury	EPA 245.7	N/A	xxxxx	xxxxx	Glass	500	1	WW	ICE
140375													
140376	10-1-14	1303	**Equipment Blank**	Low Level Mercury	EPA 245.7	N/A	xxxxx	xxxxx	Glass	500	1	WW	ICE

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Mark Wilhite	10-6-14	1050	Bobby Curtis
Bobby Curtis	10-06-14	1227	Jarrod Daugherty

CONDITIONS UPON RECEIPT

Sample Temperature 3.8 °C Temp

	Yes	No
Is Wet Ice Present?	✓	
Are custody seals present and intact or samples relinquished?	✓	
Does the COC agree with samples submitted?	✓	
Were the correct sample containers used to collect samples?	✓	
Are holding time(s) acceptable?	✓	
Have all samples on the COC been received?	✓	
Are all samples properly preserved?	✓	
Are Tests listed for each sample?	✓	
Are all sample containers intact?	✓	

MATRIX CODES	PRESERVATIVE CODES	Comments/Notes
GW- Ground Water	ICE	Samples to be Analyzed by Central Lab
SU-Surface Water	HNO_3-Nitric Acid	
SW- Solid Waste	HCl- Hydrochloric Acid	
WW-Waste Water	H_2SO_4- Sulfuric Acid	
SO-Soil/Solid	NaOH -Sodium Hydroxide	

EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, February 03, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/14/2015
Permit Number:	KY0022250	Sample Collection Time:	12:15:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	TE
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-01-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 150022**

Sample Received Date: 1/19/2015 Sample Receipt Temperature (°C): 0.8

Sample Received Time: 2:05:00 PM Sample Received By: EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	27.7	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/19/2015	1/29/2015	1:06 PM	EH
Antimony, Total	1.1	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Arsenic, Total	14.4	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Cadmium, Total	0.6	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Chromium, Total	3.4	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Copper, Total	4.9	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Lead, Total	< 1.7	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Nickel, Total	14.8	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Selenium, Total	24.7	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Thallium, Total	1.6	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Zinc, Total	15.7	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Metals, Total	0.081	mg/L	0.002							

Mineral Labs Inc Analyses **Lab Identification #: 015003652**

Sample Received Date: 1/21/2015 Sample Receipt Temperature (°C): 0.8

Sample Received Time: 1:00:00 PM Sample Received By: JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			NDP	4:30 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			NDP	3:52 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Friday, May 15, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/1/2015
Permit Number:	KY0022250	Sample Collection Time:	1:54:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-06-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 150112**

Sample Received Date:	4/6/2015	Sample Receipt Temperature (°C):	0.4
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	11.9	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/6/2015	4/9/2015	9:15 AM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Arsenic, Total	6.1	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Cadmium, Total	0.2	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Chromium, Total	3.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Copper, Total	4.8	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Nickel, Total	8.4	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Selenium, Total	11.5	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Thallium, Total	0.6	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Metals, Total	0.035	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015015640**

Sample Received Date:	4/7/2015	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	3:20:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			4/10/2015	4:47 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			4/10/2015	3:21 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, September 01, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/9/2015
Permit Number:	KY0022250	Sample Collection Time:	7:15:00 AM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-09-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 150338**

Sample Received Date: 7/13/2015 — Sample Receipt Temperature (°C): 1.0

Sample Received Time: 11:22:00 AM — Sample Received By: EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	23.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/14/2015	7/17/2015	12:04 PM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Arsenic, Total	5.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Cadmium, Total	0.2	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Chromium, Total	1.8	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Copper, Total	4.7	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Nickel, Total	13.9	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Selenium, Total	25.2	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Thallium, Total	1.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Metals, Total	0.053	mg/L	0.007	0.0192						

Mineral Labs Inc Analyses — **Lab Identification #: 015031535**

Sample Received Date: 7/14/2015 — Sample Receipt Temperature (°C): 1.0

Sample Received Time: 12:15:00 PM — Sample Received By: JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			7/22/2015	4:05 PM	SRC
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			8/3/2015	12:15 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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MINERAL LABS INC.

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Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S001-Lagoon**

Date/Time Collected: **7/09/2015 7:15:00**
Date/Time Received: **7/14/2015 12:15:00**
Lab Number: **015031535**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015031535 001					**Description: Package 1** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		7/09/15 7:15 CLT
Total Recoverable Phenolics	< 0.05	mg/L	0.010	0.05	EPA 420.4 Rev 1.0-1993	H2SO4	8/03/15 12:15 SRC
Cyanide	< 0.003	mg/L	0.002	0.003	SM 4500 CN-C, E-1999	NaOH	7/22/15 16:05 SRC
Sample Received at	1.0	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15007468@@

Lab Id
015031535

MINERAL LABS INC.

P.O. Box 549, Salyersville, KY 41465 · 606-349-6145 Fax: 606-349-6102

Whole Effluent Acute Toxicity (WET) Test Analysis Report

Client Name	East Kentucky Power Cooperative
Client Address	4775 Lexington Road, PO Box 707, Winchester, KY 40392
KPDES Permit Number	KY0022250
Outfall Number	S001
Receiving Water	Ohio River
Laboratory Number	15032461

Sample Information						
Sample #	Sample Type	Collection Date	Collection Time	Sample Receipt Date	Sample Receipt Time	Temperature Sample Receipt
15032461 AM	Grab	7/21/2015	7:00 AM	7/21/2015	12:27 PM	3.8 °C
15032461 PM	Grab	7/20/2015	3:00 PM	7/21/2015	12:27 PM	3.8 °C

Whole Effluent Toxicity and Wet Chemistry Testing Methods	
Ceriodaphnia dubia, acute	EPA 2002.0
pH	SM 4500 H^+B
Temperature	SM 2550 B
Dissolved Oxygen	SM 4500 O-G
Hardness	SM 2340 B
Alkalinity	EPA 310.2, SM 2320 B
Conductivity	SM 2510 B
Total Chlorine	SM 4500 Cl-G

Chemical Parameters at Test Initiation					
Sample Type	Hardness, mg/L	pH, S.U.	Alkalinity, mg/L	Conductivity, uS/cm	Total Residual Chlorine, mg/L
DMW (*Ceriodaphnia dubia*)	92	7.98	58	171	NA
15032461 AM	1968	7.9	63	3850	<0.02
15032461 PM	808	7.95	71	1968	<0.02

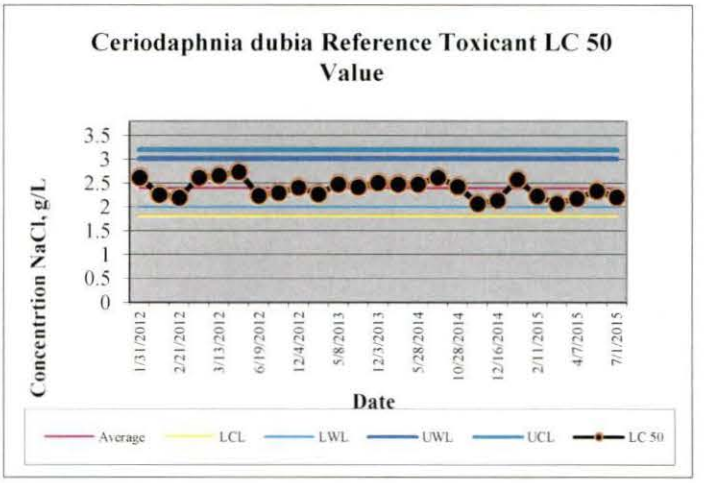
Chemical Parameters at Test Conclusion					
Sample Type	Hardness, mg/L	pH, S.U.	Alkalinity, mg/L	Conductivity, uS/cm	Total Residual Chlorine, mg/L
DMW (*Ceriodaphnia dubia*)	69	8.03	60	187	NA
15032461 AM	2008	7.99	65	4050	NA
15032461 PM	851	8.01	75	2470	NA

MINERAL LABS INC.

P.O. Box 549, Salyersville, KY 41465 · 606-349-6145 Fax: 606-349-6102

Acute Reference Toxicant Test

Test Date	7/1/2015
Test Number	1
Species	*Ceriodaphnia dubia*
Toxicant	NaCl
Concentrations	1.34 g/L, 1.78 g/L, 2.37 g/L, 3.16 g/L, 4.22 g/L
Number of Exposed Organisms	20
Test Duration	48 Hours
LC50	2.21
Upper 95% limit	2.39
Lower 95% limit	2.04
Percent Trim	0%



MINERAL LABS INC.

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Whole Effluent Acute Toxicity (WET) Test Analysis Report

Lab Number	15032461			
Species	*Ceriodaphnia dubia*			
Age of organism	<24 Hours			
	Percent Survival			
Sample Treatment	24 Hours AM	24 Hours PM	48 Hours AM	48 Hours PM
Control	100.0%	100.0%	100.0%	100.0%
20%	100.0%	100.0%	100.0%	100.0%
40%	100.0%	100.0%	100.0%	100.0%
60%	100.0%	100.0%	100.0%	100.0%
80%	100.0%	100.0%	100.0%	100.0%
100%	100.0%	100.0%	100.0%	100.0%
Ceriodaphnia dubia acute results	**LC50= > 100%**	**TU_a= < 1**	**Results: Sample Passed**	

QA/QC	Yes/No
Sample analyzed within holding time (36 hours)?	Yes
Reference toxicant test within acceptable limits?	Yes
Were samples modified prior to testing?	No
Temperatures maintained throughout test (25 +/- 1 °C)?	Yes
Dissolved Oxygen ≥ 4.0 mg/L throughout test?	Yes
Ceriodaphnia dubia control survival ≥ 90%	Yes
Comments:	

The analyses listed above are accurate to the best of my knowledge and belief

Sharlonda Matthews
Reviewed By

Shawna Chapman
Submitted By

Whole Effluent Toxicity: Acute

Mineral Labs Inc.

Facility	East Kentucky Power Cooperative	Site No.	SOO1
KPDES Permit No	KY0022250	Receiving Water	Ohio River

Sample Information					
Sample Number	Sample Type	Collection Date	Collection Time	Collection Temp	Collection pH
15032461	Grab	7-21-15	7:00AM	87°F	7.96

Test Information					
	Test Initation		Test Termination		
Type of Dilution Water	Date	Time	Date	Time	Analyst
DMW	7-21-15	14:00	7-23-15	14:00	SPC

Water Chemistry: Ceriodaphnia								
Sample Type	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Control Start	7.98	8.61	24.5	171.1	58	92	<0.02	NA
24 Hours Control	8.01	8.21	25.1	183.2	—	—	—	—
48 Hours Control	8.03	7.99	25.1	187.1	60	69	—	—
15032461 AM 100%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.90	8.60	24.6	3850	63	1968	<0.02	NA
24 Hours	7.96	8.03	25.1	4160	—	—	—	—
48 Hours	7.99	7.82	25.0	4050	65	2008	—	—
15032461 AM 80%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.93	8.62	24.5	3260	64	1642	<0.02	NA
24 Hours	7.99	8.14	25.0	3650	—	—	—	—
48 Hours	8.00	7.94	25.1	3760	64	1737	—	—
15032461 AM 60%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.95	8.61	24.5	2461	55	1205	<0.02	NA
24 Hours	7.99	8.18	25.0	2800	—	—	—	—
48 Hours	8.00	8.01	25.1	2930	62	1229	—	—
15032461 AM 40%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.97	8.61	24.6	1799	59	753	<0.02	NA
24 Hours	8.00	8.15	25.1	2160	—	—	—	—
48 Hours	8.01	8.03	25.1	2310	65	894	—	—
15032461 AM 20%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.99	8.62	24.6	1075	59	448	<0.02	NA
24 Hours	8.02	8.19	25.1	1330	—	—	—	—
48 Hours	8.02	8.08	25.1	1290	62	473	—	—

Whole Effluent Toxicity: Aquatic
Mineral Labs Inc.

Sample Information						
Sample Number	Facility	Location	Date collected	Test Initation	Test Termination	Analyst
150[illegible]461	East Kentucky Power Coop	S001	1-21-15	1-21-15 / 14:00	1-23-15 / 14:00	SLC

Species: Ceriodaphnia dubia

Age of organisms 24 hrs	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
150[illegible]461 AM 100%	15	5	5	5	5	5	5	5	5	20	6	4	5	6	19
150[illegible]461 AM 80%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
150[illegible]461 AM 60%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
150[illegible]461 AM 40%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
150[illegible]461 AM 20%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20

Comments: Ceriodaphnia fed @ 12:30

Species:

Age of organisms	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control															

Comments:

Whole Effluent Toxicity: Acute

Mineral Labs Inc.

Facility	East Kentucky Power Cooperative	Site No.	S001
KPDES Permit No	KY0022350	Receiving Water	Ohio River

Sample Information					
Sample Number	Sample Type	Collection Date	Collection Time	Collection Temp	Collection pH
150324161	Grab	7-20-15	15:00	98°F	7.77

Test Information					
	Test Initation		Test Termination		
Type of Dilution Water	Date	Time	Date	Time	Analyst
DMW	7-21-15	14:00	7-23-15	14:00	SMC

Water Chemistry: Ceriodaphnia								
Sample Type	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Control Start	7.98	8.101	24.5	171.1	58	92	<0.02	NH
24 Hours Control	8.61	8.21	25.1	183.2	—	—	—	—
48 Hours Control	8.03	7.99	25.1	187.1	60	96	—	—
150324161 PM 100%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.95	8.60	24.6	1968	71	808	<0.02	NH
24 Hours	7.97	8.13	25.1	2230	—	—	—	—
48 Hours	8.01	7.89	25.1	2470	75	851	—	—
150324161 PM 80%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.95	8.60	24.6	1645	66	718	<0.02	NH
24 Hours	7.99	8.18	25.1	1932	—	—	—	—
48 Hours	8.00	8.03	25.6	2130	72	737	—	—
150324161 PM 60%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.97	8.61	24.5	1351	63	483	<0.02	NH
24 Hours	7.98	8.15	25.0	1723	—	—	—	—
48 Hours	8.02	7.96	25.1	1906	67	538	—	—
150324161 PM 40%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.99	8.59	24.6	~~1406~~ 946	62	294	<0.02	NH
24 Hours	8.01	8.19	25.1	1176	—	—	—	—
48 Hours	8.02	8.04	25.1	1337	64	380	—	—
150324161 PM 20%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	8.00	8.61	24.6	571	59	232	<0.02	NH
24 Hours	8.02	8.22	25.1	608	—	—	—	—
48 Hours	8.04	8.09	25.1	601	63	221	—	—

Whole Effluent Toxicity: Acute
Mineral Labs Inc.

Sample Information						
Sample Number	Facility	Location	Date collected	Test Initation	Test Termination	Analyst
15032461	East Kentucky Power Coop.	S001	7-20-15	7/21-15/ 14:00	7/23-15/ 14:00	SPC

Species: Ceriodaphnia dubia

Age of organisms	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
15032461 PM 100%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
15032461 PM 80%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
15032461 PM 60%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
15032461 PM 40%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
15032461 PM 20%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20

Comments:

Species:

Age of organisms	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control															

Comments:

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

SHADED AREA FOR ANALYICAL LAB USE ONLY. EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST Please Print Legibly

Station:	Send Results to:	Compliance Monitoring
East Kentucky Power Cooperative **H.L. Spurlock Station** 1301 West Second Street Maysville, KY 41056	Eric Hamilton Chemist Email/Phone: eric.hamilton@ekpc.coop (859)745-9403	Yes Samples Chlorinated No KPDES Permit # KY0022250
Method of shipment (check one); Central Lab ____ Inhouse ____ MLI ____	Collected by (Signature): James Hughes	

Laboratory Sample ID#	COLLECTION DATE	COLLECTION TIME (24 HR)	SAMPLE DESCRIPTION:	SAMPLE ANALYSIS REQUESTED:	Sample Analysis Method:	Sample Type: (Grab or Comp)	Field Data pH S.U.	Field Data Temp. °F	Container Type	Container Volume	# OF CONTAINERS	MATRIX CODE (See Lower Left)	Preservative Code (See Lower Left)
	7-20-15	1600	S-001 Lagoon	Toxicity - Acute Ceriodaphnia	E821-R-02-012 2002.0	Grab	7.77	98°	Plastic	1 Gallon	1	WW	ICE
				Flow = 3280 GPM									
32461	7-21-15	0700	S-001 Lagoon	Toxicity - Acute Ceriodaphnia	E821-R-02-012 2002.0	Grab	7.96	87°	Plastic	1 Gallon	1	WW	ICE
				Flow = ~~3280~~ 3382 GPM									

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
James Hughes	7-21-15	08:15	Eric Wolford
Eric Wolford	7/21/15	12:27	Rita Hall

CONDITIONS UPON RECEIPT

Sample Temperature 3.8 °C Temp

	Yes	No
Is Wet Ice Present?	✓	
Are custody seals present and intact or samples relinquished?	✓	
Does the COC agree with samples submitted?	✓	
Were the correct sample containers used to collect samples?	✓	
Are holding time(s) acceptable?	✓	
Have all samples on the COC been received?	✓	
Are all samples properly preserved?	✓	
Are Tests listed for each sample?	✓	
Are all sample containers intact?	✓	

MATRIX CODES	PRESERVATIVE CODES
GW- Ground Water	ICE
SU-Surface Water	HNO_3-Nitric Acid
SW- Solid Waste	HCl- Hydrochloric Acid
WW-Waste Water	H_2SO_4- Sulfuric Acid
SO-Soil/Solid	NaOH -Sodium Hydroxide

Comments/Notes

***Samples Need to be collected Monday Evening and Tuesday Morning or Tuesday Evening and Wednesday Morning.

***Please Notify Central Lab 1 week prior to Collection.

MINERAL LABS INC.

Box 549
Salyersville, Kentucky 41465
Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S001-Lagoon**

Date/Time Collected: **7/09/2015 7:15:00**
Date/Time Received: **7/14/2015 12:15:00**
Lab Number: **015031536**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015031536 001					**Description: Waste Water** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		7/09/15 7:15 CLT
Ammonia Nitrogen	0.05	mg/L	0.01	0.05	EPA 350.1		7/20/15 13:51 SRC
Sample Received at	1.0	Degrees C					

*Taken on Site
NDP = No Data Provided
CLT = Client
ND = Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15007468@@

Lab Id
015031536

MINERAL LABS INC.

Box 549
Salyersville, Kentucky 41465
Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S001-Lagoon**

Date/Time Collected: **8/11/2015 7:15:00**
Date/Time Received: **8/18/2015 13:30:00**
Lab Number: **015037544**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015037544 001					**Description: Waste Water** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		8/11/15 7:15 CLT
Ammonia Nitrogen	0.08	mg/L	0.01	0.05	EPA 350.1		8/27/15 14:00 SRC
Sample Received at	0.2	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15008833@@

Lab Id
015037544

MINERAL LABS INC.

Box 549
Salyersville, Kentucky 41465
Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S001-Lagoon**

Date/Time Collected: **9/09/2015 10:02:00**
Date/Time Received: **9/17/2015 15:15:00**
Lab Number: **015042522**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015042522 001					**Description: Waste Water** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		9/09/15 10:02 CLT
Ammonia Nitrogen	0.17	mg/L	0.01	0.05	EPA 350.1		9/28/15 12:06 SRC
Sample Received at	2.0	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15009944@@

Lab Id
015042522

EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, November 04, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/12/2015
Permit Number:	KY0022250	Sample Collection Time:	1:00:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-10-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 150582**

Sample Received Date:	10/19/2015	Sample Receipt Temperature (°C):	1.6
Sample Received Time:	12:05:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/19/2015	11/3/2015	10:31 AM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Arsenic, Total	6.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Cadmium, Total	0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Chromium, Total	4.2	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Copper, Total	6.4	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Nickel, Total	3.7	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Selenium, Total	3.6	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Thallium, Total	0.3	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Zinc, Total	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/22/2015	10/22/2015	2:48 PM	EH
Metals, Total	0.025	mg/L	0.007	0.0192						

Mineral Labs Inc Analyses **Lab Identification #: 015047989**

Sample Received Date:	10/16/2015	Sample Receipt Temperature (°C):	2.3
Sample Received Time:	2:00:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			10/26/2015	12:39 PM	BWH
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			10/22/2015	3:00 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
www.ekpc.coop

MINERAL LABS INC.

Box 549
Salyersville, Kentucky 41465
Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S001-Lagoon**

Date/Time Collected: **10/12/2015 13:00:00**
Date/Time Received: **10/21/2015 13:18:00**
Lab Number: **015047989**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	EXC	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015047989		**001**				**Description: Package 1** Sample Type: Grab		
Temperature Field		NDP	Degrees C			*		10/12/15 13:00 CLT
Total Recoverable Phenolics		< 0.05	mg/L	0.010	0.05	EPA 420.4 Rev 1.0-1993	H2SO4	10/22/15 15:00 SRC
Cyanide		< 0.003	mg/L	0.002	0.003	EPA 335.4 Rev 1.0-1993	NaOH	10/26/15 12:39 BWH
Sample Received at		1.8	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected

Exceedance
H - Holding Time

The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15011158@@

Lab Id
015047989

MINERAL LABS INC.

Box 549
Salyersville, Kentucky 41465
Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S001-Lagoon**

Date/Time Collected: **10/27/2015 9:25:00**
Date/Time Received: **10/27/2015 12:40:00**
Lab Number: **015049377**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	EXC	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015049377 001						**Description: Waste Water** Sample Type: Grab		
Temperature Field		24.4	Degrees C			*		10/27/15 9:25 CLT
Toxicity, ceriodaphnia acute		< 1	TU		1	EPA 2002.0		10/29/15 14:00 SRC
Sample Received at		2.4	Degrees C					

* Taken on Site
NDP= No Data Provided H - Holding Time
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15011394@@

Lab Id
015049377

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Whole Effluent Acute Toxicity (WET) Test Analysis Report

Client Name	East Kentucky Power Cooperative
Client Address	4775 Lexington Road, PO Box 707, Winchester, KY 40392
KPDES Permit Number	KY0022250
Outfall Number	S001
Receiving Water	Ohio River
Laboratory Number	15049377

Sample Information

Sample #	Sample Type	Collection Date	Collection Time	Sample Receipt Date	Sample Receipt Time	Temperature Sample Receipt
15049377 AM	Grab	10/27/2015	9:25 AM	10/27/2015	12:40 PM	2.4 °C
15049377 PM	Grab	10/26/2015	3:00 PM	10/27/2015	12:40 PM	2.4 °C

Whole Effluent Toxicity and Wet Chemistry Testing Methods

Ceriodaphnia dubia, acute	EPA 2002.0
pH	SM 4500 H^+B
Temperature	SM 2550 B
Dissolved Oxygen	SM 4500 O-G
Hardness	SM 2340 B
Alkalinity	EPA 310.2, SM 2320 B
Conductivity	SM 2510 B
Total Chlorine	SM 4500 Cl-G

Chemical Parameters at Test Initiation

Sample Type	Hardness, mg/L	pH, S.U.	Alkalinity, mg/L	Conductivity, uS/cm	Total Residual Chlorine, mg/L
DMW (*Ceriodaphnia dubia*)	97	7.98	61	178	NA
15049377 AM	1074	7.80	76	2957	<0.02
15049377 PM	1170	7.85	75	3210	<0.02

Chemical Parameters at Test Conclusion

Sample Type	Hardness, mg/L	pH, S.U.	Alkalinity, mg/L	Conductivity, uS/cm	Total Residual Chlorine, mg/L
DMW (*Ceriodaphnia dubia*)	135	7.98	50	193	NA
15049377 AM	1161	7.83	74	3210	NA
15049377 PM	1195	7.9	74	3560	NA

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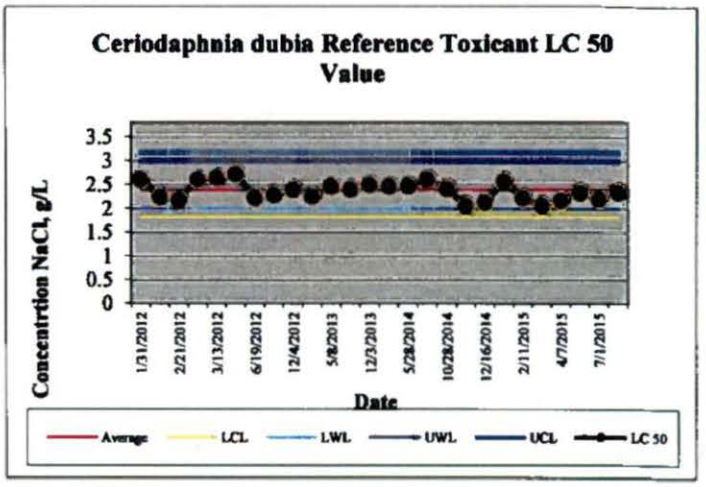
Acute Reference Toxicant Test

Test Date	10/27/2015
Test Number	1
Species	*Ceriodaphnia dubia*
Toxicant	NaCl
Concentrations	1.34 g/L, 1.78 g/L, 2.37 g/L, 3.16 g/L, 4.22 g/L
Number of Exposed Organisms	20
Test Duration	48 Hours
LC50	2.35
Upper 95% limit	2.52
Lower 95% limit	2.19
Percent Trim	0%



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Whole Effluent Acute Toxicity (WET) Test Analysis Report

Lab Number	15049377			
Species	*Ceriodaphnia dubia*			
Age of organism	<24 Hours			
	Percent Survival			
Sample Treatment	24 Hours AM	24 Hours PM	48 Hours AM	48 Hours PM
Control	100.0%	100.0%	95.0%	95.0%
20%	100.0%	100.0%	100.0%	100.0%
40%	100.0%	100.0%	100.0%	100.0%
60%	100.0%	100.0%	100.0%	100.0%
80%	100.0%	100.0%	100.0%	100.0%
100%	100.0%	100.0%	100.0%	95.0%
Ceriodaphnia dubia acute results	**LC50= > 100%**	**TU_a= < 1**	**Results: Sample Passed**	

QA/QC	Yes/No
Sample analyzed within holding time (36 hours)?	Yes
Reference toxicant test within acceptable limits?	Yes
Were samples modified prior to testing?	No
Temperatures maintained throughout test (25 +/- 1 °C)?	Yes
Dissolved Oxygen ≥ 4.0 mg/L throughout test?	Yes
Ceriodaphnia dubia control survival ≥ 90%	Yes
Comments:	

The analyses listed above are accurate to the best of my knowledge and belief

Sharlonda Matthews
Reviewed By

Shanna Chapman
Submitted By

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

SHADED AREA FOR ANALYICAL LAB USE ONLY EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST Please Print Legibly

Station:	Send Results to:	Compliance Monitoring
East Kentucky Power Cooperative **H.L. Spurlock Station** 1301 West Second Street Maysville, KY 41056	Eric Hamilton Chemist Email/Phone: eric.hamilton@ekpc.coop (859)745-9403	Yes Samples Chlorinated No KPDES Permit # KY0022250
Method of shipment (check one); Central Lab ____ Inhouse ____ MLI ____	Collected by (Signature):	

Laboratory Sample ID#	COLLECTION DATE	COLLECTION TIME (24 HR)	SAMPLE DESCRIPTION:	SAMPLE ANALYSIS REQUESTED:	Sample Analysis Method:	Sample Type: (Grab or Comp)	Field Data pH S.U.	Field Data Temp. °F	Container Type	Container Volume	# OF CONTAINERS	MATRIX CODE (See Lower Left)	Preservative Code (See Lower Left)
44377	10-20-15	1500	S-001 Lagoon	Toxicity - Acute Ceriodaphnia	E821-R-02-012 2002.0	Grab	7.72	75°	Plastic	1 Gallon	1	WW	ICE
				Flow = 1556 GPM									
	10-22-15	0925	S-001 Lagoon	Toxicity - Acute Ceriodaphnia	E821-R-02-012 2002.0	Grab	7.71	76°	Plastic	1 Gallon	1	WW	ICE
				Flow = 6543 GPM									

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
	10-22-15	09:40	
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
	10/22/15	12:40	
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

CONDITIONS UPON RECEIPT

Sample Temperature 24 °C Temp

	Yes	No
Is Wet Ice Present?	✓	
Are custody seals present and intact or samples relinquished?		
Does the COC agree with samples submitted?		
Were the correct sample containers used to collect samples?		
Are holding time(s) acceptable?		
Have all samples on the COC been received?		
Are all samples properly preserved?		
Are Tests listed for each sample?		
Are all sample containers intact?		

MATRIX CODES	PRESERVATIVE CODES	Comments/Notes
GW- Ground Water SU-Surface Water SW- Solid Waste WW-Waste Water SO-Soil/Solid	ICE HNO_3-Nitric Acid HCl- Hydrochloric Acid H_2SO_4- Sulfuric Acid NaOH -Sodium Hydroxide	***Samples Need to be collected Monday Evening and Tuesday Morning or Tuesday Evening and Wednesday Morning. ***Please Notify Central Lab 1 week prior to Collection.

Whole Effluent Toxicity: Acute
Mineral Labs Inc.

Facility	East Kentucky Power Cooperative	Site No.	S001
KPDES Permit No	KY0022350	Receiving Water	Ohio River

Sample Information					
Sample Number	Sample Type	Collection Date	Collection Time	Collection Temp	Collection pH
15049377	6196	10-29-15	9:35	76°F	7.79

Test Information					
	Test Initation		Test Termination		
Type of Dilution Water	Date	Time	Date	Time	Analyst
DMW	10-27-15	14:00	10-29-15	14:00	SLC/MBA

Water Chemistry: Ceriodaphnia

Sample Type	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Control Start	7.98	8.43	24.7	178.4	101	97	<0.02	NH
24 Hours Control	7.96	7.95	25.1	158.5	—	—	—	—
48 Hours Control	7.98	7.54	25.2	143.1	50	135	—	—
AM 15049377 100%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.80	8.41	24.6	2957	76	1074	<0.02	NH
24 Hours	7.82	7.83	25.1	3136	—	—	—	—
48 Hours	7.83	7.61	25.2	3210	74	1161	—	—
AM 15049377 80%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.86	8.43	24.6	2490	73	989	<0.02	NH
24 Hours	7.86	7.80	25.1	2600	—	—	—	—
48 Hours	7.85	7.71	25.1	2580	71	1081	—	—
AM 15049377 60%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.91	8.42	24.7	1979	69	803	<0.02	NA
24 Hours	7.93	7.91	25.2	1990	—	—	—	—
48 Hours	7.95	7.83	25.2	2130	69	918	—	—
AM 15049377 40%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.92	8.44	24.7	1452	107	609	<0.02	NA
24 Hours	7.90	7.95	25.2	1683	—	—	—	—
48 Hours	7.94	7.86	25.1	1597	66	776	—	—
AM 15049377 20%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	8.01	8.41	24.8	851	123	335	<0.02	NA
24 Hours	7.99	8.03	25.1	908	—	—	—	—
48 Hours	7.98	7.91	25.1	936	65	463	—	—

Whole Effluent Toxicity: Acute
Mineral Labs Inc.

Sample Information						
Sample Number	Facility	Location	Date collected	Test Initation	Test Termination	Analyst
1504937	EKPC	SOO1	10-27-15	10-27-15 1400	10-29-15 1400	SLC

Species: Ceriodaphnia dubia

Age of organisms <24hrs	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control	15	5	5	5	5	5	5	5	5	20	5	4	5	5	19
1504937 AM 100%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 80%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 60%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 40%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 20%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20

Comments: fed Ceriodaphnia @ 1145am

Species:

Age of organisms	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control															

Comments:

Whole Effluent Toxicity: Acute
Mineral Labs Inc.

Facility	East Kentucky Power Cooperative	Site No.	S001
KPDES Permit No	KY0022250	Receiving Water	Ohio River

Sample Information					
Sample Number	Sample Type	Collection Date	Collection Time	Collection Temp	Collection pH
15049377	Grab	10-26-15	15:00	75°F	7.72

Test Information					
	Test Initation		Test Termination		
Type of Dilution Water	Date	Time	Date	Time	Analyst
DMW	10-27-15	14:00	10-29-15	14:00	SEC/MGA

Water Chemistry: Ceriodaphnia								
Sample Type	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Control Start	7.98	8.43	24.7	178.4	61	97	<0.02	NA
24 Hours Control	7.96	7.86	25.2	188.5	—	—	—	—
48 Hours Control	7.98	7.101	25.2	193.1	50	135	—	—
15049377 PM 100%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.85	8.41	24.6	~~3210~~ 3210	75	1170	<0.02	NA
24 Hours	7.88	7.80	25.1	3450	—	—	—	—
48 Hours	7.90	7.89	25.1	3560	74	1195	—	—
15049377 PM 80%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.87	8.42	24.6	2677	72	1020	<0.02	NA
24 Hours	7.89	7.84	25.2	2961	—	—	—	—
48 Hours	7.92	7.79	25.1	3010	69	1133	—	—
15049377 PM 60%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.95	8.41	24.6	2111	75	835	<0.02	NA
24 Hours	7.97	7.86	25.2	2361	—	—	—	—
48 Hours	7.96	7.81	25.2	2394	69	1043	—	—
15049377 PM 40%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.95	8.39	24.7	1537	66	644	<0.02	NA
24 Hours	7.97	7.93	25.2	1722	—	—	—	—
48 Hours	7.99	7.85	25.1	1695	65	800	—	—
15049377 PM 20%	pH	DO, mg/L	Temp, °C	Conductivity, uS/cm	Alkalinity, mg/L	Hardness, mg/L	TRC, mg/L	Ammonia, mg/L
Start	7.98	8.44	24.7	827	62	321	<0.02	NA
24 Hours	7.99	7.86	25.1	939	—	—	—	—
48 Hours	8.01	7.93	25.1	943	62	417	—	—

Whole Effluent Toxicity: Acute
Mineral Labs Inc.

Sample Information						
Sample Number	Facility	Location	Date collected	Test Initation	Test Termination	Analyst
1504937	EKPC	S001	10-26-15	10-27-15 / 14:00	10-29-15 / 14:00	SRC

Species: Ceriodaphnia dubia

Age of organisms <24hrs	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control	15	5	5	5	5	5	5	5	5	20	5	4	5	5	19
1504937 AM 100%	15	5	5	5	5	5	5	5	4	19	5	5	5	4	19
1504937 AM 80%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 60%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 40%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20
1504937 AM 20%	15	5	5	5	5	5	5	5	5	20	5	5	5	5	20

Comments: Fed Ceriodaphnia @ 11:45am

Species:

Age of organisms	Sample Vol	Number Live Organisms													
		Start				24 Hours					48 Hours				
Sample ID	mL	1	2	3	4	1	2	3	4	Total	1	2	3	4	Total
Control															

Comments:

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outlet 001
Collection Date: 2/9/2017 08:15 AM

Work Order: 1702513
Lab ID: 1702513-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **E200.8**			Prep: E200.8 / 2/13/17		Analyst: **RH**
Titanium	**0.014**		**0.00039**	**0.0050**	**mg/L**	1	2/15/2017 13:23
FECAL COLIFORM		Method: **A9222 D-97**					Analyst: **MLH**
Fecal Coliform	*25*		10	10	cfu/100ml	1	2/9/2017 15:10
BIOCHEMICAL OXYGEN DEMAND		Method: **A5210B-11**			Prep: A5210B / 2/10/17		Analyst: **ARC**
Biochemical Oxygen Demand	**6.5**		**2.0**	**2.0**	**mg/L**	1	2/15/2017 08:34
COLOR		Method: **A2120 B-11**					Analyst: **RLK**
Color	**20**		**1.0**	**1.0**	**p.c.u.**	1	2/10/2017 09:30
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **E625**			Prep: SW3510 / 2/13/17		Analyst: **RM**
1,2,4-Trichlorobenzene	U		0.41	5.0	µg/L	1	2/15/2017 08:12
1,2-Dichlorobenzene	U		0.39	5.0	µg/L	1	2/15/2017 08:12
1,2-Diphenylhydrazine	U		0.14	5.0	µg/L	1	2/15/2017 08:12
1,3-Dichlorobenzene	U		0.65	5.0	µg/L	1	2/15/2017 08:12
1,4-Dichlorobenzene	U		0.32	5.0	µg/L	1	2/15/2017 08:12
2,4,6-Trichlorophenol	U		0.25	5.0	µg/L	1	2/15/2017 08:12
2,4-Dichlorophenol	U		0.35	5.0	µg/L	1	2/15/2017 08:12
2,4-Dimethylphenol	U		0.36	5.0	µg/L	1	2/15/2017 08:12
2,4-Dinitrophenol	U		0.40	5.0	µg/L	1	2/15/2017 08:12
2,4-Dinitrotoluene	U		0.42	5.0	µg/L	1	2/15/2017 08:12
2,6-Dinitrotoluene	U		0.11	5.0	µg/L	1	2/15/2017 08:12
2-Chloronaphthalene	U		0.075	5.0	µg/L	1	2/15/2017 08:12
2-Chlorophenol	U		0.23	5.0	µg/L	1	2/15/2017 08:12
2-Nitrophenol	U		0.34	5.0	µg/L	1	2/15/2017 08:12
3,3′-Dichlorobenzidine	U		1.6	5.0	µg/L	1	2/15/2017 08:12
4,6-Dinitro-2-methylphenol	U		0.27	5.0	µg/L	1	2/15/2017 08:12
4-Bromophenyl phenyl ether	U		0.33	5.0	µg/L	1	2/15/2017 08:12
4-Chloro-3-methylphenol	U		0.26	5.0	µg/L	1	2/15/2017 08:12
4-Chlorophenyl phenyl ether	U		0.31	5.0	µg/L	1	2/15/2017 08:12
4-Nitrophenol	U		0.24	5.0	µg/L	1	2/15/2017 08:12
Acenaphthene	U		0.081	5.0	µg/L	1	2/15/2017 08:12
Acenaphthylene	U		0.075	5.0	µg/L	1	2/15/2017 08:12
Anthracene	U		0.028	5.0	µg/L	1	2/15/2017 08:12
Benzidine	U		2.0	10	µg/L	1	2/15/2017 08:12
Benzo(a)anthracene	U		0.022	5.0	µg/L	1	2/15/2017 08:12
Benzo(a)pyrene	U		0.044	5.0	µg/L	1	2/15/2017 08:12
Benzo(b)fluoranthene	U		0.051	5.0	µg/L	1	2/15/2017 08:12
Benzo(g,h,i)perylene	U		0.030	5.0	µg/L	1	2/15/2017 08:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outlet 001
Collection Date: 2/9/2017 08:15 AM

Work Order: 1702513
Lab ID: 1702513-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(k)fluoranthene	U		0.048	5.0	µg/L	1	2/15/2017 08:12
Bis(2-chloroethoxy)methane	U		0.29	5.0	µg/L	1	2/15/2017 08:12
Bis(2-chloroisopropyl)ether	U		0.23	5.0	µg/L	1	2/15/2017 08:12
Bis(2-ethylhexyl)phthalate	U		0.40	5.0	µg/L	1	2/15/2017 08:12
Butyl benzyl phthalate	U		0.30	5.0	µg/L	1	2/15/2017 08:12
Chrysene	U		0.048	5.0	µg/L	1	2/15/2017 08:12
Dibenzo(a,h)anthracene	U		0.030	5.0	µg/L	1	2/15/2017 08:12
Diethyl phthalate	U		0.17	5.0	µg/L	1	2/15/2017 08:12
Di-n-butyl phthalate	U		0.21	5.0	µg/L	1	2/15/2017 08:12
Di-n-octyl phthalate	U		0.15	5.0	µg/L	1	2/15/2017 08:12
Fluoranthene	U		0.038	5.0	µg/L	1	2/15/2017 08:12
Fluorene	U		0.051	5.0	µg/L	1	2/15/2017 08:12
Hexachlorobenzene	U		0.44	5.0	µg/L	1	2/15/2017 08:12
Hexachlorobutadiene	U		0.28	5.0	µg/L	1	2/15/2017 08:12
Hexachlorocyclopentadiene	U		1.1	5.0	µg/L	1	2/15/2017 08:12
Hexachloroethane	U		0.21	5.0	µg/L	1	2/15/2017 08:12
Indeno(1,2,3-cd)pyrene	U		0.067	5.0	µg/L	1	2/15/2017 08:12
Isophorone	U		0.34	5.0	µg/L	1	2/15/2017 08:12
Naphthalene	U		0.067	5.0	µg/L	1	2/15/2017 08:12
Nitrobenzene	U		0.26	5.0	µg/L	1	2/15/2017 08:12
N-Nitrosodimethylamine	U		0.48	5.0	µg/L	1	2/15/2017 08:12
N-Nitrosodi-n-propylamine	U		0.35	5.0	µg/L	1	2/15/2017 08:12
N-Nitrosodiphenylamine	U		0.23	5.0	µg/L	1	2/15/2017 08:12
Pentachlorophenol	U		0.97	5.0	µg/L	1	2/15/2017 08:12
Phenanthrene	U		0.030	5.0	µg/L	1	2/15/2017 08:12
Phenol	U		0.21	5.0	µg/L	1	2/15/2017 08:12
Pyrene	U		0.036	5.0	µg/L	1	2/15/2017 08:12
Surr: 2,4,6-Tribromophenol	*65.3*			*38-115*	*%REC*	1	2/15/2017 08:12
Surr: 2-Fluorobiphenyl	*54.0*			*32-100*	*%REC*	1	2/15/2017 08:12
Surr: 2-Fluorophenol	*27.1*			*22-59*	*%REC*	1	2/15/2017 08:12
Surr: 4-Terphenyl-d14	*74.8*			*23-112*	*%REC*	1	2/15/2017 08:12
Surr: Nitrobenzene-d5	*41.2*			*31-93*	*%REC*	1	2/15/2017 08:12
Surr: Phenol-d6	*15.5*			*13-36*	*%REC*	1	2/15/2017 08:12
VOLATILE ORGANIC COMPOUNDS		Method:**E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	2/10/2017 20:11
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	2/10/2017 20:11
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	2/10/2017 20:11
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	2/10/2017 20:11
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	2/10/2017 20:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outlet 001
Collection Date: 2/9/2017 08:15 AM

Work Order: 1702513
Lab ID: 1702513-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	2/10/2017 20:11
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	2/10/2017 20:11
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	2/10/2017 20:11
Acrolein	U		2.5	10	µg/L	1	2/10/2017 20:11
Acrylonitrile	U		0.18	1.0	µg/L	1	2/10/2017 20:11
Benzene	U		0.30	1.0	µg/L	1	2/10/2017 20:11
Bromodichloromethane	U		0.23	1.0	µg/L	1	2/10/2017 20:11
Bromoform	U		0.77	1.0	µg/L	1	2/10/2017 20:11
Bromomethane	U		0.38	1.0	µg/L	1	2/10/2017 20:11
Carbon tetrachloride	U		0.31	1.0	µg/L	1	2/10/2017 20:11
Chlorobenzene	U		0.27	1.0	µg/L	1	2/10/2017 20:11
Chloroethane	U		0.29	1.0	µg/L	1	2/10/2017 20:11
Chloroform	U		0.26	1.0	µg/L	1	2/10/2017 20:11
Chloromethane	U		0.17	1.0	µg/L	1	2/10/2017 20:11
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	2/10/2017 20:11
Dibromochloromethane	U		0.38	1.0	µg/L	1	2/10/2017 20:11
Ethylbenzene	U		0.40	1.0	µg/L	1	2/10/2017 20:11
Methylene chloride	U		0.56	5.0	µg/L	1	2/10/2017 20:11
Tetrachloroethene	U		0.27	1.0	µg/L	1	2/10/2017 20:11
Toluene	U		0.37	1.0	µg/L	1	2/10/2017 20:11
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	2/10/2017 20:11
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	2/10/2017 20:11
Vinyl chloride	U		0.20	1.0	µg/L	1	2/10/2017 20:11
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	2/10/2017 20:11
Surr: 1,2-Dichloroethane-d4	*111*			*75-120*	*%REC*	1	2/10/2017 20:11
Surr: 4-Bromofluorobenzene	*87.8*			*80-110*	*%REC*	1	2/10/2017 20:11
Surr: Dibromofluoromethane	*110*			*85-115*	*%REC*	1	2/10/2017 20:11
Surr: Toluene-d8	*103*			*85-110*	*%REC*	1	2/10/2017 20:11
CYANIDE, TOTAL		Method: **E335.4 R1.0**			Prep: SW9012B / 2/13/17		Analyst: **JB**
Cyanide, Total	**0.0084**		**0.0020**	**0.0050**	**mg/L**	1	2/13/2017 12:56
CHEMICAL OXYGEN DEMAND		Method: **E410.4 R2.0**					Analyst: **JJG**
Chemical Oxygen Demand	**32**		**3.0**	**5.0**	**mg/L**	1	2/10/2017 12:50
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **EE**
Bromide	**6.0**		**1.1**	**2.0**	**mg/L**	10	2/16/2017 11:47
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.51**		**0.0050**	**0.020**	**mg NH3-N/L**	1	2/10/2017 12:17
NITROGEN, NITRATE-NITRITE		Method: **E353.2 R2.0**					Analyst: **JJG**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outlet 001
Collection Date: 2/9/2017 08:15 AM

Work Order: 1702513
Lab ID: 1702513-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Nitrogen, Nitrate-Nitrite	3.0		0.013	0.020	mg/L	1	2/14/2017 12:58
NITROGEN, TOTAL ORGANIC			Method:**CALCULATION**				Analyst: **JB**
Nitrogen, Total Organic	1.4		1.0	1.0	mg/L	1	2/15/2017 11:40
PHOSPHORUS, TOTAL			Method:**E365.1 R2.0**				Analyst: **JJG**
Phosphorus, Total	0.20		0.024	0.050	mg/L	1	2/13/2017 13:39
PHENOLICS, TOTAL			Method:**E420.4**		Prep: E420.x / 2/15/17		Analyst: **JB**
Phenolics, Total	0.12		0.0020	0.010	mg/L	1	2/16/2017 11:29
NITROGEN, TOTAL KJELDAHL			Method:**A4500-NH3 G-97**		Prep: A4500-N B / 2/13/17		Analyst: **JB**
Nitrogen, Total Kjeldahl	1.9		0.48	1.0	mg/L	1	2/15/2017 09:24
ORGANIC CARBON, TOTAL			Method:**A5310C-00**				Analyst: **JJG**
Organic Carbon, Total	4.5		0.039	0.50	mg/L	1	2/10/2017 13:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **98127** Instrument ID **ICPMS2** Method: **E200.8**

MBLK Sample ID: **MBLK-98118-98127** Units: **mg/L** Analysis Date: **2/14/2017 10:24 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287024** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	U	0.00039	0.0050								

MBLK Sample ID: **MBLK-98127-98127** Units: **mg/L** Analysis Date: **2/14/2017 10:35 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287026** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	U	0.00039	0.0050								

LCS Sample ID: **LCS-98118-98127** Units: **mg/L** Analysis Date: **2/14/2017 10:29 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287025** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.09883	0.00039	0.0050	0.1	0	98.8	85-115	0			

LCS Sample ID: **LCS-98127-98127** Units: **mg/L** Analysis Date: **2/14/2017 10:40 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287027** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.09925	0.00039	0.0050	0.1	0	99.2	85-115	0			

MS Sample ID: **1702517-01DMS** Units: **mg/L** Analysis Date: **2/15/2017 01:33 PM**

Client ID: Run ID: **ICPMS2_170215A** SeqNo: **4288349** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1015	0.00039	0.0050	0.1	0.000851	101	70-130	0			

MS Sample ID: **1702529-01BMS** Units: **mg/L** Analysis Date: **2/15/2017 02:08 PM**

Client ID: Run ID: **ICPMS2_170215A** SeqNo: **4289202** Prep Date: **2/13/2017** DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1043	0.0039	0.050	0.1	0.0001849	104	70-130	0			

MSD Sample ID: **1702517-01DMSD** Units: **mg/L** Analysis Date: **2/15/2017 01:38 PM**

Client ID: Run ID: **ICPMS2_170215A** SeqNo: **4288350** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1009	0.00039	0.0050	0.1	0.000851	100	70-130	0.1015	0.593	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, February 18, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/7/2016
Permit Number:	KY0022250	Sample Collection Time:	12:00:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	AR
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-03-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 160020**

Sample Received Date:	1/11/2016	Sample Receipt Temperature (°C):	3.6
Sample Received Time:	11:20:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/11/2016	1/18/2016	10:25 AM	JD
Antimony, Total	1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Arsenic, Total	9.5	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Cadmium, Total	0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Chromium, Total	3.4	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Copper, Total	7.1	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Nickel, Total	3.4	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Selenium, Total	2.2	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Thallium, Total	0.4	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Metals, Total	0.027	mg/L								

ALS Group USA, Corp Analyses **Lab Identification #: 1601465-02**

Sample Received Date:	1/13/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	4:00:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	1/18/2016	1/19/2016	2:40 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	1/14/2016	1/15/2016	12:46 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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ALS Group USA, Corp

Date: *20-Jan-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160020 (S-001)
Collection Date: 1/7/2016 12:00 PM

Work Order: 1601465
Lab ID: 1601465-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL			Method: **E335.4 R1.0**		Prep: SW9012B / 1/18/16		Analyst: **JB**
Cyanide, Total	U		0.0030	0.0050	mg/L	1	1/19/2016 14:40
PHENOLICS, TOTAL			Method: **E420.4**		Prep: E420.x / 1/14/16		Analyst: **JB**
Phenolics, Total	U		0.0065	0.010	mg/L	1	1/15/2016 12:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *20-Jan-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: S-001 Lagoon
Collection Date: 1/12/2016 03:00 PM

Work Order: 1601466
Lab ID: 1601466-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ACUTE CERIODAPHNIA			Method: **E821-R-02-012 2002.0**				Analyst: **MLH**
Acute C. dubia	**0.0**		**0**		**Tua**	1	1/13/2016 17:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *20-Jan-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: S-001 Lagoon
Collection Date: 1/13/2016 07:00 AM

Work Order: 1601466
Lab ID: 1601466-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ACUTE CERIODAPHNIA			Method: **E821-R-02-012 2002.0**				Analyst: **MLH**
Acute C. dubia	**0.0**		**0**		**Tua**	1	1/14/2016 12:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *20-Jan-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160019 (S-001)
Collection Date: 1/7/2016 12:00 PM

Work Order: 1601465
Lab ID: 1601465-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.12**		**0.0060**	**0.020**	**mg NH3-N/L**	1	1/15/2016 11:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *15-Feb-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160095 (S-001)
Collection Date: 2/4/2016 07:47 AM

Work Order: 1602427
Lab ID: 1602427-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.77**		**0.0060**	**0.020**	**mg NH3-N/L**	1	2/11/2016 09:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *14-Mar-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160137 (S-001 Lagoon)
Collection Date: 3/4/2016 10:20 AM

Work Order: 1603425
Lab ID: 1603425-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.38**		**0.0060**	**0.020**	**mg NH3-N/L**	1	3/11/2016 10:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/7/2016
Permit Number:	KY0022250	Sample Collection Time:	12:25:00 PM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160210**

Sample Received Date: 4/8/2016 — Sample Receipt Temperature (°C): 3.2

Sample Received Time: 10:24:00 AM — Sample Received By: EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	8.2	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/11/2016	4/22/2016	10:14 AM	JD
Antimony, Total	1.2	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Arsenic, Total	13.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Cadmium, Total	0.7	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Chromium, Total	4.3	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Copper, Total	6.3	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Nickel, Total	11.6	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Selenium, Total	11.9	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Thallium, Total	2.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Zinc, Total	64.5	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:17 PM	EH
Metals, Total	0.116	mg/L	0.007	0.0192						

ALS Group USA, Corp Analyses — **Lab Identification #: 1604852-01**

Sample Received Date: 4/15/2016 — Sample Receipt Temperature (°C): < 6.0

Sample Received Time: 2:40:00 PM — Sample Received By: JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	4/18/2016	4/18/2016	2:17 PM	JB
Phenolics, Total	< 0.01	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	4/19/2016	4/20/2016	9:28 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

Laboratory Supervisor

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ALS Group USA, Corp

Date: *21-Apr-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160210 (S-001 Lagoon)
Collection Date: 4/7/2016 12:25 PM

Work Order: 1604852
Lab ID: 1604852-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL			Method: **E335.4 R1.0**		Prep: SW9012B / 4/18/16		Analyst: **JB**
Cyanide, Total	U		0.0020	0.0050	mg/L	1	4/18/2016 14:17
PHENOLICS, TOTAL			Method: **E420.4**		Prep: E420.x / 4/19/16		Analyst: **JB**
Phenolics, Total	**0.0040**	J	**0.0030**	**0.010**	**mg/L**	1	4/20/2016 09:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Apr-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: S-001 Lagoon (Initial Grab)
Collection Date: 4/25/2016 03:00 PM

Work Order: 16041433
Lab ID: 16041433-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ACUTE CERIODAPHNIA			Method: **E821-R-02-012 2002.0**				Analyst: **MLH**
Acute C. dubia	**0.0**		**0**		**Tua**	1	4/26/2016 16:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Apr-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: S-001 Lagoon (Final Grab)
Collection Date: 4/26/2016 07:00 AM

Work Order: 16041433
Lab ID: 16041433-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ACUTE CERIODAPHNIA			Method: **E821-R-02-012 2002.0**				Analyst: **MLH**
Acute C. dubia	**0.0**		**0**		**Tua**	1	4/26/2016 16:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Apr-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160209 (S-001 Lagoon)
Collection Date: 4/7/2016 12:25 PM

Work Order: 1604853
Lab ID: 1604853-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.34**		**0.0060**	**0.020**	**mg NH3-N/L**	1	4/19/2016 12:59

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *24-May-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: S-001 Lagoon (160307)
Collection Date: 5/4/2016 10:00 AM

Work Order: 1605955
Lab ID: 1605955-01
Matrix: WASTEWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.64**		**0.0050**	**0.020**	**mg NH3-N/L**	1	5/19/2016 12:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Jun-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160369 (S-001 Lagoon)
Collection Date: 6/5/2016 08:45 AM

Work Order: 1606799
Lab ID: 1606799-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.43**		**0.0050**	**0.020**	**mg NH3-N/L**	1	6/16/2016 12:17

Note: See Qualifiers page for a list of qualifiers and their definitions.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, October 12, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/12/2016
Permit Number:	KY0022250	Sample Collection Time:	7:23:00 AM
Site ID:	**Outfall 001**	Sample Collected by:	AR
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160450**

Sample Received Date:	7/15/2016	Sample Receipt Temperature (°C):	1.0
Sample Received Time:	9:25:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/21/2016	8/5/2016	12:11 PM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Arsenic, Total	10.3	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Cadmium, Total	0.7	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Chromium, Total	3.2	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Copper, Total	5.2	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Nickel, Total	19.1	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Selenium, Total	15.9	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Thallium, Total	2.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Zinc, Total	14.5	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Metals, Total	0.071	mg/L	0.007	0.0192						

ALS Group USA, Corp Analyses — **Lab Identification #: 1607879-01**

Sample Received Date:	7/15/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	2:55:00 PM	Sample Received By:	JAS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	7/18/2016	7/19/2016	1:23 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	7/28/2016	7/29/2016	10:42 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, January 17, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/15/2016
Permit Number:	KY0022250	Sample Collection Time:	9:00:00 AM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-12-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160727**

Sample Received Date:	10/17/2016	Sample Receipt Temperature (°C):	2.5
Sample Received Time:	2:45:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	6.5	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/19/2016	10/25/2016	11:04 AM	JD
Antimony, Total	3.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Arsenic, Total	14.7	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Cadmium, Total	1.9	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Chromium, Total	5.1	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Copper, Total	7.8	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Lead, Total	1.4	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Nickel, Total	23.1	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Selenium, Total	17.9	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Thallium, Total	7.3	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Zinc, Total	19.7	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/1/2016	11/7/2016	2:46 PM	JD
Metals, Total	0.102	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 16101702-01**

Sample Received Date:	10/26/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	2:51:00 PM	Sample Received By:	JAS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	NDP	10/31/2016	9:36 AM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	10/29/2016	10/31/2016	11:36 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, April 4, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/13/2017
Permit Number:	KY0022250	Sample Collection Time:	10:30:00 AM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Sample Matrix:	Wastewater	Sample Matrix:	Wastewater
Laboratory Certification ID:	KY# 08012	Samples Chlorinated:	No

EKPC - Central Laboratory Analyses **Lab Identification #: 170113**

Sample Received Date:	1/16/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	1:17:00 PM	Sample Received By:	JD

Parameter	Result	Units	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Total Recoverable Metals									
Aluminium, Total	314	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:52 PM	JD
Barium, Total	126	µg/L	5	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Boron, Total	11958	µg/L	1000	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/2/2017	6:17 AM	JD
Cobalt, Total	6.7	µg/L	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Iron, Total	379	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/2/2017	6:17 AM	JD
Magnesium	217422	µg/L	1000	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/2/2017	6:17 AM	JD
Manganese, Total	10825	µg/L	100	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/2/2017	6:17 AM	JD
Molybdenum, Total	125.9	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, March 02, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/13/2017
Permit Number:	KY0022250	Sample Collection Time:	10:30:00 AM
Site ID:	**Outfall 001**	Sample Collected by:	JH
Extended Site ID:	**Secondary Lagoon**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2017-03-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 170028**

Sample Received Date: 1/16/2017 — Sample Receipt Temperature (°C): < 6

Sample Received Time: 1:17:00 PM — Sample Received By: JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Metals										
Low Level Mercury	9.4	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/17/2017	1/17/2017	12:31 PM	JE
Antimony, Total	2.2	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Arsenic, Total	13.4	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:23 PM	JD
Cadmium, Total	0.7	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Chromium, Total	3.2	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Copper, Total	4.8	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Nickel, Total	22.7	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Selenium, Total	23.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Thallium, Total	1.8	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Zinc, Total	15.4	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Metals, Total	0.088	mg/L	0.007	0.0192						

ALS Group USA, Corp Analyses — **Lab Identification #: 170111094-01**

Sample Received Date: 1/23/2017 — Sample Receipt Temperature (°C): < 6

Sample Received Time: 3:25:00 PM — Sample Received By: JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	1/25/2017	1/25/2017	12:50 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	1/25/2017	1/26/2017	9:44 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Friday, May 15, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/3/2015
Permit Number:	KY0022250	Sample Collection Time:	2:30:00 PM
Site ID:	**Outfall 005**	Sample Collected by:	AR
Extended Site ID:	**Coal pile runoff emergency overflow**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-04-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	9.73	S.U.			SM 4500-H+, B-2000			4/3/2015	2:30 PM	AR
Flow	0.1410	MGD			Calculated			4/3/2015	2:30 PM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150117**

Sample Received Date:	4/6/2015	Sample Receipt Temperature (°C):	0.4
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	874	mg/L	0.07	1	SM 2340, B-1997			04/29/2015	10:39 AM	EH
Suspended Solids, Total	28.9	mg/L		2.5	SM 2540, D-1997			4/7/2015	12:13 PM	EH
Metals, Total Recoverable										
Mercury	8.6	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/6/2015	4/9/2015	9:15 AM	EH
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Arsenic	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Cadmium	0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Copper	1.5	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Nickel	11.9	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Selenium	13.8	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Thallium	0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Zinc	10.3	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Metals, Total	0.038	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015015638**

Sample Received Date:	4/7/2015	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	3:20:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			4/10/2015	4:47 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			4/13/2015	3:21 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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ALS Group, USA

Date: *14-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 005
Collection Date: 3/1/2017 11:53 AM

Work Order: 1703212
Lab ID: 1703212-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **E625**			Prep: SW3510 / 3/7/17		Analyst: **RS**
1,2,4-Trichlorobenzene	U		0.41	5.0	µg/L	1	3/8/2017 12:24
1,2-Dichlorobenzene	U		0.39	5.0	µg/L	1	3/8/2017 12:24
1,2-Diphenylhydrazine	U		0.14	5.0	µg/L	1	3/8/2017 12:24
1,3-Dichlorobenzene	U		0.65	5.0	µg/L	1	3/8/2017 12:24
1,4-Dichlorobenzene	U		0.32	5.0	µg/L	1	3/8/2017 12:24
2,4,6-Trichlorophenol	U		0.25	5.0	µg/L	1	3/8/2017 12:24
2,4-Dichlorophenol	U		0.35	5.0	µg/L	1	3/8/2017 12:24
2,4-Dimethylphenol	U		0.36	5.0	µg/L	1	3/8/2017 12:24
2,4-Dinitrophenol	U		0.40	5.0	µg/L	1	3/8/2017 12:24
2,4-Dinitrotoluene	U		0.42	5.0	µg/L	1	3/8/2017 12:24
2,6-Dinitrotoluene	U		0.11	5.0	µg/L	1	3/8/2017 12:24
2-Chloronaphthalene	U		0.075	5.0	µg/L	1	3/8/2017 12:24
2-Chlorophenol	U		0.23	5.0	µg/L	1	3/8/2017 12:24
2-Nitrophenol	U		0.34	5.0	µg/L	1	3/8/2017 12:24
3,3'-Dichlorobenzidine	U		1.6	5.0	µg/L	1	3/8/2017 12:24
4,6-Dinitro-2-methylphenol	U		0.27	5.0	µg/L	1	3/8/2017 12:24
4-Bromophenyl phenyl ether	U		0.33	5.0	µg/L	1	3/8/2017 12:24
4-Chloro-3-methylphenol	U		0.26	5.0	µg/L	1	3/8/2017 12:24
4-Chlorophenyl phenyl ether	U		0.31	5.0	µg/L	1	3/8/2017 12:24
4-Nitrophenol	U		0.24	5.0	µg/L	1	3/8/2017 12:24
Acenaphthene	U		0.081	5.0	µg/L	1	3/8/2017 12:24
Acenaphthylene	U		0.075	5.0	µg/L	1	3/8/2017 12:24
Anthracene	U		0.028	5.0	µg/L	1	3/8/2017 12:24
Benzidine	U		2.0	10	µg/L	1	3/8/2017 12:24
Benzo(a)anthracene	U		0.022	5.0	µg/L	1	3/8/2017 12:24
Benzo(a)pyrene	U		0.044	5.0	µg/L	1	3/8/2017 12:24
Benzo(b)fluoranthene	U		0.051	5.0	µg/L	1	3/8/2017 12:24
Benzo(g,h,i)perylene	U		0.030	5.0	µg/L	1	3/8/2017 12:24
Benzo(k)fluoranthene	U		0.048	5.0	µg/L	1	3/8/2017 12:24
Bis(2-chloroethoxy)methane	U		0.29	5.0	µg/L	1	3/8/2017 12:24
Bis(2-chloroisopropyl)ether	U		0.23	5.0	µg/L	1	3/8/2017 12:24
Bis(2-ethylhexyl)phthalate	**2.9**	J	**0.40**	**5.0**	**µg/L**	1	3/8/2017 12:24
Butyl benzyl phthalate	U		0.30	5.0	µg/L	1	3/8/2017 12:24
Chrysene	U		0.048	5.0	µg/L	1	3/8/2017 12:24
Dibenzo(a,h)anthracene	U		0.030	5.0	µg/L	1	3/8/2017 12:24
Diethyl phthalate	U		0.17	5.0	µg/L	1	3/8/2017 12:24
Di-n-butyl phthalate	U		0.21	5.0	µg/L	1	3/8/2017 12:24
Di-n-octyl phthalate	U		0.15	5.0	µg/L	1	3/8/2017 12:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 005
Collection Date: 3/1/2017 11:53 AM

Work Order: 1703212
Lab ID: 1703212-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		0.038	5.0	µg/L	1	3/8/2017 12:24
Fluorene	U		0.051	5.0	µg/L	1	3/8/2017 12:24
Hexachlorobenzene	U		0.44	5.0	µg/L	1	3/8/2017 12:24
Hexachlorobutadiene	U		0.28	5.0	µg/L	1	3/8/2017 12:24
Hexachlorocyclopentadiene	U		1.1	5.0	µg/L	1	3/8/2017 12:24
Hexachloroethane	U		0.21	5.0	µg/L	1	3/8/2017 12:24
Indeno(1,2,3-cd)pyrene	U		0.067	5.0	µg/L	1	3/8/2017 12:24
Isophorone	U		0.34	5.0	µg/L	1	3/8/2017 12:24
Naphthalene	U		0.067	5.0	µg/L	1	3/8/2017 12:24
Nitrobenzene	U		0.26	5.0	µg/L	1	3/8/2017 12:24
N-Nitrosodimethylamine	U		0.48	5.0	µg/L	1	3/8/2017 12:24
N-Nitrosodi-n-propylamine	U		0.35	5.0	µg/L	1	3/8/2017 12:24
N-Nitrosodiphenylamine	U		0.23	5.0	µg/L	1	3/8/2017 12:24
Pentachlorophenol	U		0.97	5.0	µg/L	1	3/8/2017 12:24
Phenanthrene	U		0.030	5.0	µg/L	1	3/8/2017 12:24
Phenol	U		0.21	5.0	µg/L	1	3/8/2017 12:24
Pyrene	U		0.036	5.0	µg/L	1	3/8/2017 12:24
Surr: 2,4,6-Tribromophenol	*77.9*			*38-115*	*%REC*	1	3/8/2017 12:24
Surr: 2-Fluorobiphenyl	*66.4*			*32-100*	*%REC*	1	3/8/2017 12:24
Surr: 2-Fluorophenol	*43.1*			*22-59*	*%REC*	1	3/8/2017 12:24
Surr: 4-Terphenyl-d14	*93.6*			*23-112*	*%REC*	1	3/8/2017 12:24
Surr: Nitrobenzene-d5	*63.9*			*31-93*	*%REC*	1	3/8/2017 12:24
Surr: Phenol-d6	*26.0*			*13-36*	*%REC*	1	3/8/2017 12:24
VOLATILE ORGANIC COMPOUNDS		Method: **E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	3/9/2017 12:58
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	3/9/2017 12:58
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	3/9/2017 12:58
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	3/9/2017 12:58
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	3/9/2017 12:58
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	3/9/2017 12:58
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	3/9/2017 12:58
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	3/9/2017 12:58
Acrolein	U		2.5	10	µg/L	1	3/9/2017 12:58
Acrylonitrile	U		0.18	1.0	µg/L	1	3/9/2017 12:58
Benzene	U		0.30	1.0	µg/L	1	3/9/2017 12:58
Bromodichloromethane	U		0.23	1.0	µg/L	1	3/9/2017 12:58
Bromoform	U		0.77	1.0	µg/L	1	3/9/2017 12:58
Bromomethane	U		0.38	1.0	µg/L	1	3/9/2017 12:58
Carbon tetrachloride	U		0.31	1.0	µg/L	1	3/9/2017 12:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 005
Collection Date: 3/1/2017 11:53 AM

Work Order: 1703212
Lab ID: 1703212-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	U		0.27	1.0	µg/L	1	3/9/2017 12:58
Chloroethane	U		0.29	1.0	µg/L	1	3/9/2017 12:58
Chloroform	U		0.26	1.0	µg/L	1	3/9/2017 12:58
Chloromethane	U		0.17	1.0	µg/L	1	3/9/2017 12:58
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	3/9/2017 12:58
Dibromochloromethane	U		0.38	1.0	µg/L	1	3/9/2017 12:58
Ethylbenzene	U		0.40	1.0	µg/L	1	3/9/2017 12:58
Methylene chloride	U		0.56	5.0	µg/L	1	3/9/2017 12:58
Tetrachloroethene	U		0.27	1.0	µg/L	1	3/9/2017 12:58
Toluene	U		0.37	1.0	µg/L	1	3/9/2017 12:58
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	3/9/2017 12:58
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	3/9/2017 12:58
Vinyl chloride	U		0.20	1.0	µg/L	1	3/9/2017 12:58
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	3/9/2017 12:58
Surr: 1,2-Dichloroethane-d4	*104*			*75-120*	*%REC*	1	3/9/2017 12:58
Surr: 4-Bromofluorobenzene	*96.8*			*80-110*	*%REC*	1	3/9/2017 12:58
Surr: Dibromofluoromethane	*98.8*			*85-115*	*%REC*	1	3/9/2017 12:58
Surr: Toluene-d8	*97.6*			*85-110*	*%REC*	1	3/9/2017 12:58
CYANIDE, TOTAL		Method:	**E335.4 R1.0**		Prep: SW9012B / 3/6/17		Analyst: **JB**
Cyanide, Total	U		0.0020	0.0050	mg/L	1	3/6/2017 12:41
CHEMICAL OXYGEN DEMAND		Method:	**E410.4 R2.0**				Analyst: **KF**
Chemical Oxygen Demand	**16**		**3.0**	**5.0**	**mg/L**	1	3/9/2017 10:42
ANIONS BY ION CHROMATOGRAPHY		Method:	**E300.0**				Analyst: **EE**
Bromide	U		0.22	0.40	mg/L	2	3/9/2017 15:42
AMMONIA AS NITROGEN		Method:	**A4500-NH3 G-97**				Analyst: **JJG**
Ammonia as Nitrogen	**0.60**		**0.0050**	**0.020**	**mg NH3-N/L**	1	3/7/2017 12:41
NITROGEN, NITRATE-NITRITE		Method:	**E353.2 R2.0**				Analyst: **JJG**
Nitrogen, Nitrate-Nitrite	**0.30**		**0.013**	**0.020**	**mg/L**	1	3/6/2017 09:09
NITROGEN, TOTAL ORGANIC		Method:	**CALCULATION**				Analyst: **JB**
Nitrogen, Total Organic	*<1*		1.0	1.0	mg/L	1	3/14/2017 13:20
PHOSPHORUS, TOTAL		Method:	**E365.1 R2.0**				Analyst: **JJG**
Phosphorus, Total	**0.071**		**0.024**	**0.050**	**mg/L**	1	3/7/2017 09:59
PHENOLICS, TOTAL		Method:	**E420.4**		Prep: E420.x / 3/7/17		Analyst: **JB**
Phenolics, Total	U		0.0020	0.010	mg/L	1	3/8/2017 09:29
NITROGEN, TOTAL KJELDAHL		Method:	**A4500-NH3 G-97**		Prep: A4500-N B / 3/13/17		Analyst: **JB**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 005
Collection Date: 3/1/2017 11:53 AM

Work Order: 1703212
Lab ID: 1703212-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Nitrogen, Total Kjeldahl	U		0.48	1.0	mg/L	1	3/14/2017 12:33
ORGANIC CARBON, TOTAL		Method: **A5310C-00**					Analyst: **JJG**
Organic Carbon, Total	**1.9**		**0.039**	**0.50**	**mg/L**	1	3/9/2017 11:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Trip Blank
Collection Date: 3/1/2017

Work Order: 1703212
Lab ID: 1703212-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	3/9/2017 12:32
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	3/9/2017 12:32
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	3/9/2017 12:32
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	3/9/2017 12:32
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	3/9/2017 12:32
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	3/9/2017 12:32
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	3/9/2017 12:32
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	3/9/2017 12:32
Acrolein	U		2.5	10	µg/L	1	3/9/2017 12:32
Acrylonitrile	U		0.18	1.0	µg/L	1	3/9/2017 12:32
Benzene	U		0.30	1.0	µg/L	1	3/9/2017 12:32
Bromodichloromethane	U		0.23	1.0	µg/L	1	3/9/2017 12:32
Bromoform	U		0.77	1.0	µg/L	1	3/9/2017 12:32
Bromomethane	U		0.38	1.0	µg/L	1	3/9/2017 12:32
Carbon tetrachloride	U		0.31	1.0	µg/L	1	3/9/2017 12:32
Chlorobenzene	U		0.27	1.0	µg/L	1	3/9/2017 12:32
Chloroethane	U		0.29	1.0	µg/L	1	3/9/2017 12:32
Chloroform	U		0.26	1.0	µg/L	1	3/9/2017 12:32
Chloromethane	U		0.17	1.0	µg/L	1	3/9/2017 12:32
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	3/9/2017 12:32
Dibromochloromethane	U		0.38	1.0	µg/L	1	3/9/2017 12:32
Ethylbenzene	U		0.40	1.0	µg/L	1	3/9/2017 12:32
Methylene chloride	U		0.56	5.0	µg/L	1	3/9/2017 12:32
Tetrachloroethene	U		0.27	1.0	µg/L	1	3/9/2017 12:32
Toluene	U		0.37	1.0	µg/L	1	3/9/2017 12:32
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	3/9/2017 12:32
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	3/9/2017 12:32
Vinyl chloride	U		0.20	1.0	µg/L	1	3/9/2017 12:32
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	3/9/2017 12:32
Surr: 1,2-Dichloroethane-d4	*105*			*75-120*	*%REC*	1	3/9/2017 12:32
Surr: 4-Bromofluorobenzene	*96.4*			*80-110*	*%REC*	1	3/9/2017 12:32
Surr: Dibromofluoromethane	*97.8*			*85-115*	*%REC*	1	3/9/2017 12:32
Surr: Toluene-d8	*99.5*			*85-110*	*%REC*	1	3/9/2017 12:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

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Certificate of Analysis
7031159

Eric Hamilton
East Kentucky Power Cooperative
4775 Lexington Road
Winchester KY, 40391

Customer ID: EA2481
Report Printed: 03/15/2017 14:51

Project Name:	H. L. Spurlock Station	Workorder:	7031159

Dear Eric Hamilton

Enclosed are the analytical results for samples received at one of our laboratories on 03/01/2017 15:20.

McCoy & McCoy Laboratories, Inc. and Environmental Certification Labs are commercial laboratories accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our websites at www.mccoylabs.com or www.eclabs.org for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

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Madisonville

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Brett Davis

Brett Davis, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
7031159-01	Outfall 005/	Water	03/01/2017 11:53	03/01/2017 15:20	Mark Willett

ANALYTICAL RESULTS

Lab Sample ID: **7031159-01**
Description: **Outfall 005**

Sample Collection Date Time: 03/01/2017 11:53
Sample Received Date Time: 03/01/2017 15:20

Metals by EPA 200 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Titanium	**0.010**		mg/L	0.004	0.004	EPA 200.8 REV 5.4	03/07/2017 11:40	03/08/2017 16:00	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
ADMI Color at original pH	**11**		ADMI	1	1	2120 E-1997	03/02/2017 15:18	03/02/2017 16:02	TLB
ADMI Color at pH = 7.6	**12**		ADMI	1	1	2120 E-1997	03/02/2017 15:18	03/02/2017 16:24	TLB

Conventional Chemistry Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
BOD 5 Day	**2**	U	mg/L	2		5210 B-2001	03/02/2017 09:04	03/07/2017 09:56	BLC

Notes for work order 7031159

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.

U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Quallifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
<	Less than

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Paducah, KY 270.444.6547

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Certified Analyses included in this Report

Analyte	Certifications
5210 B-2001 in Water	
BOD 5 Day	KY Wastewater Lex (00066)
EPA 200.8 REV 5.4 in Water	
Titanium	VA NELAC Mdv (460210) KY Wastewater Mdv (00030)

Sample Acceptance Checklist for Work Order 7031159

Shipped By: Client

Temperature: 4.10° Celcius

Condition	
Custody seals present/intact?	☐
Were any containers received damaged?	☐
COC submitted and complete?	☑
COC agree with sample labels?	☑
All containers listed on COC received?	☑
Were all samples in appropriate containers?	☑
Did all samples have appropriate volumes?	☑
Were collection methods recorded on COC?	☐
Were flow units recorded on COC?	☐
Any headspace issues with volatile samples?	☐
Were all holding times acceptable?	☑
Were preserved samples within acceptable pH range?	☑
Were preserved samples within acceptable Cl2 range	☐

EAST KENTUCKY POWER COOPERATIVE

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

SHADED AREA FOR ANALYICAL LAB USE ONLY EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST Please Print Legibly

Station:	Sample Description / ID:	Collection Date:
East Kentucky Power Cooperative	Outfall 005	3-1-17
H.L. Spurlock Station	Matrix:	Collection Time:
1301 West Second Street	Water	1153
Maysville, KY 41056	Field pH (S.U.)	Temperature (°C)
	7.82	31

Method of shipment (check one);	KPDES Permit #:
CL ✓ Inhouse ___ Contract ✓	KY0022250

SAMPLE ANALYSIS REQUESTED:	Analysis Method:	Line Item #	Container Type	Container Volume (mL)	# of Containers	Preservative
~~Fecal Coliform (MF)~~	~~SM 9222, D-97~~	1	Plastic	100	1	$Na_2S_2O_3$
★ Color	SM 2120, B-11	2	Plastic	250	1	< 6°c
★ BOD	SM 5210, B-11	3	Plastic	1000	1	< 6°c
Chemical Oxygen Demand	EPA 410.4 R2.0	4	Amber Glass	120	1	H_2SO_4
Total Organic Carbon	SM 5310C	5	Amber Glass	120	1	H_2SO_4
Ammonia, Nitrogen	A4500-NH3 G-97	6	Plastic	250	1	H_2SO_4
Nitrate-Nitrite,	EPA 353.2 R2.0	7	Amber Glass	250	1	H_2SO_4
Total Organic Nitrogen	Calculation	8				
Bromide	EPA 300.0	9	Plastic	250	1	< 6°c
Total Phosphorus	EPA 365.1 R2.0	10	Amber Glass	120	1	H_2SO_4
★ Titanium, Total	EPA 200.8	11	Plastic	250	1	HNO_3
Cyanide, Total	EPA 335.4	12	Plastic	250	1	NaOH
Phenolics, Total	EPA 420.4	13	Amber Glass	250	1	H_2SO_4
Volatiles***	EPA 624	20	Glass	40	3	HCl
Semi-Volatiles	EPA 625	21	Amber Glass	1000	2	< 6°c

Contract Lab

3/1/17

Collected by: (Signature)	DATE	TIME	Received by: (Signature)
[signature]	~~3/1/17~~ 3/1/17	1320	[signature]
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
[signature]	3/1/17	1520	[signature]
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

Notes/Comments: All invoices must be identified with the EKPC Purchase Order # 0000113572 and the associated Line Item Number.

*** = Trip Blank Included

WO 7031159

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, January 19, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	12/18/2016
Permit Number:	KY0022250	Sample Collection Time:	8:05:00 AM
Site ID:	**Outfall 005**	Sample Collected by:	JH
Extended Site ID:	**Coal pile runoff emergency overflow**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	7.04	S.U.			SM 4500-H+, B-2000			12/18/2016	8:05 AM	JH
Flow	0.1270	MGD			Calculated			12/18/2016	8:05 AM	JH

EKPC - Central Laboratory Analyses — **Lab Identification #: 160942**

Sample Received Date:	12/19/2016	Sample Receipt Temperature (°C):	2.9
Sample Received Time:	7:00:00 AM	Sample Received By:	JE

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	500	mg/L	0.07	1	SM 2340, B-1997			1/12/2016	2:50 AM	JD
Suspended Solids, Total	20.2	mg/L		2.5	SM 2540, D-1997			12/19/2016	8:16 AM	JE
Metals, Total Recoverable										
Mercury	17.4	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	12/19/2016	12/21/2016	6:43 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	11:45 AM	JD
Arsenic	8.7	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/16/2017	6:01 PM	JD
Beryllium	6.3	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	6:01 PM	JD
Cadmium	0.6	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	11:45 AM	JD
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	11:45 AM	JD
Copper	3.6	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	1/3/2017	1/6/2017	1:10 AM	JD
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	11:45 AM	JD
Nickel	51.3	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	1/3/2017	1/6/2017	1:10 AM	JD
Selenium	3.4	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	1/3/2017	1/6/2017	1:10 AM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	11:45 AM	JD
Thallium	1.0	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/6/2017	11:45 AM	JD
Zinc	124.9	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	1/3/2017	1/6/2017	1:10 AM	JD
Metals, Total	0.200	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 16121137-01**

Sample Received Date:	12/20/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	1:15:00 PM	Sample Received By:	JAS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.002	0.003	E335.4 Rev 1.0-1993	SW9012B	12/27/2016	12/27/2016	12:29 PM	JB
Phenolics, Total	< 0.010	mg/L	0.010	0.05	E420.4 Rev 1.0-1993	E420.x	12/22/2016	12/22/2016	2:40 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, April 04, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	3/1/2017
Permit Number:	KY0022250	Sample Collection Time:	11:53:00 AM
Site ID:	**Outfall 005**	Sample Collected by:	MW
Extended Site ID:	**Coal pile runoff emergency overflow**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2017-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	7.82	S.U.			SM 4500-H+, B-2000			3/1/2017	11:53 AM	MW
Flow	0.0560	MGD			Calculated			3/1/2017	11:53 AM	MW

EKPC - Central Laboratory Analyses **Lab Identification #: 170210**

Sample Received Date:	3/1/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	3:50:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	372	mg/L	0.07	1	SM 2340, B-1997			3/13/2017 3/14/2017	14:00 14:51	JD JD
Suspended Solids, Total	22.7	mg/L		2.5	SM 2540, D-1997			3/3/2017	8:05 AM	JE
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	3/1/2017	3/16/2017	8:38 AM	JE
Antimony	< 1.0	µg/L	0.25	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Arsenic	1.0	µg/L	0.26	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Beryllium	< 1.0	µg/L	0.13	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Cadmium	< 0.1	µg/L	0.060	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Chromium	< 1.0	µg/L	0.17	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Copper	2.2	µg/L	0.21	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Lead	< 1.0	µg/L	0.30	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Nickel	10.1	µg/L	0.94	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Selenium	3.5	µg/L	0.45	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Silver	< 1.0	µg/L	0.21	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/13/2017	2:00 PM	JD
Thallium	0.3	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/13/2017	2:00 PM	JD
Zinc	17.8	µg/L	0.88	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	3/3/2017	3/10/2017	3:36 PM	JD
Metals, Total	0.035	mg/L	0.004	0.019						

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

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27-Mar-2017

Eric Hamilton
East Kentucky Power Cooperative
4775 Lexington Road
Winchester, KY 40391

Re: **H.L. Spurlock Station** Work Order: **17021344**

Dear Eric,

ALS Environmental received 2 samples on 24-Feb-2017 02:23 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 52.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

Certificate No: KY: 98004

Report of Laboratory Analysis

ALS Group, USA

Date: 27-Mar-17

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Work Order: **17021344**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
17021344-01	Outfall 006	Water		2/22/2017 10:00	2/24/2017 14:23	☐
17021344-01	Outfall 006	Water		2/22/2017 10:00	2/25/2017 10:00	☐
17021344-01	Outfall 006	Water		2/22/2017 10:00	2/25/2017 10:00	☐
17021344-02	Trip Blank	Water		2/22/2017	2/24/2017 14:23	☐
17021344-02	Trip Blank	Water		2/22/2017	2/25/2017 10:00	☐

Client:	East Kentucky Power Cooperative
Project:	H.L. Spurlock Station
Work Order:	17021344

Case Narrative

Radchem samples were analyzed at Pace Analytical (see attached report).

QC Comments:

Batch 98625, Method SVO_625_WW, Sample 17021344-01P: One or more acid surrogate recoveries were below the lower control limits. The acidic sample results may be biased low. 2,4,6-Tribromophenol

Batch 98696, Method TKN_4500N_W, Sample 17021344-01D MS: The MS and/or MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: TKN

Batch 98743, Method ICP_200.8_WW, Sample 17021344-01GMS: The MS and/or MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mn

Batch 98743, Method ICP_200.8_WW, Sample 17021344-01GMS: The MS and/or MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al

Batch R206981, Method COD_410.4LL_W, Sample 17021344-01A MS: The MS and/or MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: COD_LL

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
WorkOrder: **17021344**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
as noted	
mg NH3-N/L	Milligrams Ammonia-Nitrogen per Liter
mg/L	Milligrams per Liter

ALS Group, USA

Date: *27-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 006
Collection Date: 2/22/2017 10:00 AM

Work Order: 17021344
Lab ID: 17021344-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **E200.8**			Prep: E200.8 / 3/1/17		Analyst: **RH**
Titanium	**0.0073**		**0.00039**	**0.0050**	**mg/L**	1	3/1/2017 18:57
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **E625**			Prep: SW3510 / 2/27/17		Analyst: **RS**
1,2,4-Trichlorobenzene	U		0.41	5.0	µg/L	1	2/28/2017 12:40
1,2-Dichlorobenzene	U		0.39	5.0	µg/L	1	2/28/2017 12:40
1,2-Diphenylhydrazine	U		0.14	5.0	µg/L	1	2/28/2017 12:40
1,3-Dichlorobenzene	U		0.65	5.0	µg/L	1	2/28/2017 12:40
1,4-Dichlorobenzene	U		0.32	5.0	µg/L	1	2/28/2017 12:40
2,4,6-Trichlorophenol	U		0.25	5.0	µg/L	1	2/28/2017 12:40
2,4-Dichlorophenol	U		0.35	5.0	µg/L	1	2/28/2017 12:40
2,4-Dimethylphenol	U		0.36	5.0	µg/L	1	2/28/2017 12:40
2,4-Dinitrophenol	U		0.40	5.0	µg/L	1	2/28/2017 12:40
2,4-Dinitrotoluene	U		0.42	5.0	µg/L	1	2/28/2017 12:40
2,6-Dinitrotoluene	U		0.11	5.0	µg/L	1	2/28/2017 12:40
2-Chloronaphthalene	U		0.075	5.0	µg/L	1	2/28/2017 12:40
2-Chlorophenol	U		0.23	5.0	µg/L	1	2/28/2017 12:40
2-Nitrophenol	U		0.34	5.0	µg/L	1	2/28/2017 12:40
3,3´-Dichlorobenzidine	U		1.6	5.0	µg/L	1	2/28/2017 12:40
4,6-Dinitro-2-methylphenol	U		0.27	5.0	µg/L	1	2/28/2017 12:40
4-Bromophenyl phenyl ether	U		0.33	5.0	µg/L	1	2/28/2017 12:40
4-Chloro-3-methylphenol	U		0.26	5.0	µg/L	1	2/28/2017 12:40
4-Chlorophenyl phenyl ether	U		0.31	5.0	µg/L	1	2/28/2017 12:40
4-Nitrophenol	U		0.24	5.0	µg/L	1	2/28/2017 12:40
Acenaphthene	U		0.081	5.0	µg/L	1	2/28/2017 12:40
Acenaphthylene	U		0.075	5.0	µg/L	1	2/28/2017 12:40
Anthracene	U		0.028	5.0	µg/L	1	2/28/2017 12:40
Benzidine	U		2.0	10	µg/L	1	2/28/2017 12:40
Benzo(a)anthracene	U		0.022	5.0	µg/L	1	2/28/2017 12:40
Benzo(a)pyrene	U		0.044	5.0	µg/L	1	2/28/2017 12:40
Benzo(b)fluoranthene	U		0.051	5.0	µg/L	1	2/28/2017 12:40
Benzo(g,h,i)perylene	U		0.030	5.0	µg/L	1	2/28/2017 12:40
Benzo(k)fluoranthene	U		0.048	5.0	µg/L	1	2/28/2017 12:40
Bis(2-chloroethoxy)methane	U		0.29	5.0	µg/L	1	2/28/2017 12:40
Bis(2-chloroisopropyl)ether	U		0.23	5.0	µg/L	1	2/28/2017 12:40
Bis(2-ethylhexyl)phthalate	U		0.40	5.0	µg/L	1	2/28/2017 12:40
Butyl benzyl phthalate	U		0.30	5.0	µg/L	1	2/28/2017 12:40
Chrysene	U		0.048	5.0	µg/L	1	2/28/2017 12:40
Dibenzo(a,h)anthracene	U		0.030	5.0	µg/L	1	2/28/2017 12:40
Diethyl phthalate	U		0.17	5.0	µg/L	1	2/28/2017 12:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 006
Collection Date: 2/22/2017 10:00 AM

Work Order: 17021344
Lab ID: 17021344-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Di-n-butyl phthalate	U		0.21	5.0	µg/L	1	2/28/2017 12:40
Di-n-octyl phthalate	U		0.15	5.0	µg/L	1	2/28/2017 12:40
Fluoranthene	U		0.038	5.0	µg/L	1	2/28/2017 12:40
Fluorene	U		0.051	5.0	µg/L	1	2/28/2017 12:40
Hexachlorobenzene	U		0.44	5.0	µg/L	1	2/28/2017 12:40
Hexachlorobutadiene	U		0.28	5.0	µg/L	1	2/28/2017 12:40
Hexachlorocyclopentadiene	U		1.1	5.0	µg/L	1	2/28/2017 12:40
Hexachloroethane	U		0.21	5.0	µg/L	1	2/28/2017 12:40
Indeno(1,2,3-cd)pyrene	U		0.067	5.0	µg/L	1	2/28/2017 12:40
Isophorone	U		0.34	5.0	µg/L	1	2/28/2017 12:40
Naphthalene	U		0.067	5.0	µg/L	1	2/28/2017 12:40
Nitrobenzene	U		0.26	5.0	µg/L	1	2/28/2017 12:40
N-Nitrosodimethylamine	U		0.48	5.0	µg/L	1	2/28/2017 12:40
N-Nitrosodi-n-propylamine	U		0.35	5.0	µg/L	1	2/28/2017 12:40
N-Nitrosodiphenylamine	U		0.23	5.0	µg/L	1	2/28/2017 12:40
Pentachlorophenol	U		0.97	5.0	µg/L	1	2/28/2017 12:40
Phenanthrene	U		0.030	5.0	µg/L	1	2/28/2017 12:40
Phenol	U		0.21	5.0	µg/L	1	2/28/2017 12:40
Pyrene	U		0.036	5.0	µg/L	1	2/28/2017 12:40
Surr: 2,4,6-Tribromophenol	*38.0*	S		*38-115*	*%REC*	1	2/28/2017 12:40
Surr: 2-Fluorobiphenyl	*49.2*			*32-100*	*%REC*	1	2/28/2017 12:40
Surr: 2-Fluorophenol	*28.9*			*22-59*	*%REC*	1	2/28/2017 12:40
Surr: 4-Terphenyl-d14	*74.0*			*23-112*	*%REC*	1	2/28/2017 12:40
Surr: Nitrobenzene-d5	*45.3*			*31-93*	*%REC*	1	2/28/2017 12:40
Surr: Phenol-d6	*18.0*			*13-36*	*%REC*	1	2/28/2017 12:40
VOLATILE ORGANIC COMPOUNDS		Method: **E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	2/27/2017 14:53
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	2/27/2017 14:53
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	2/27/2017 14:53
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	2/27/2017 14:53
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	2/27/2017 14:53
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	2/27/2017 14:53
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	2/27/2017 14:53
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	2/27/2017 14:53
Acrolein	U		2.5	10	µg/L	1	2/27/2017 14:53
Acrylonitrile	U		0.18	1.0	µg/L	1	2/27/2017 14:53
Benzene	U		0.30	1.0	µg/L	1	2/27/2017 14:53
Bromodichloromethane	U		0.23	1.0	µg/L	1	2/27/2017 14:53
Bromoform	U		0.77	1.0	µg/L	1	2/27/2017 14:53

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 006
Collection Date: 2/22/2017 10:00 AM

Work Order: 17021344
Lab ID: 17021344-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromomethane	U		0.38	1.0	µg/L	1	2/27/2017 14:53
Carbon tetrachloride	U		0.31	1.0	µg/L	1	2/27/2017 14:53
Chlorobenzene	U		0.27	1.0	µg/L	1	2/27/2017 14:53
Chloroethane	U		0.29	1.0	µg/L	1	2/27/2017 14:53
Chloroform	U		0.26	1.0	µg/L	1	2/27/2017 14:53
Chloromethane	U		0.17	1.0	µg/L	1	2/27/2017 14:53
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	2/27/2017 14:53
Dibromochloromethane	U		0.38	1.0	µg/L	1	2/27/2017 14:53
Ethylbenzene	U		0.40	1.0	µg/L	1	2/27/2017 14:53
Methylene chloride	U		0.56	5.0	µg/L	1	2/27/2017 14:53
Tetrachloroethene	U		0.27	1.0	µg/L	1	2/27/2017 14:53
Toluene	U		0.37	1.0	µg/L	1	2/27/2017 14:53
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	2/27/2017 14:53
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	2/27/2017 14:53
Vinyl chloride	U		0.20	1.0	µg/L	1	2/27/2017 14:53
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	2/27/2017 14:53
Surr: 1,2-Dichloroethane-d4	*98.7*			*75-120*	*%REC*	1	2/27/2017 14:53
Surr: 4-Bromofluorobenzene	*95.0*			*80-110*	*%REC*	1	2/27/2017 14:53
Surr: Dibromofluoromethane	*94.9*			*85-115*	*%REC*	1	2/27/2017 14:53
Surr: Toluene-d8	*95.1*			*85-110*	*%REC*	1	2/27/2017 14:53
CYANIDE, TOTAL			Method:**E335.4 R1.0**		Prep: SW9012B / 2/27/17		Analyst: **JB**
Cyanide, Total	U		0.0020	0.0050	mg/L	1	2/28/2017 14:05
CHEMICAL OXYGEN DEMAND			Method:**E410.4 R2.0**				Analyst: **KF**
Chemical Oxygen Demand	U		3.0	5.0	mg/L	1	3/2/2017 10:54
ANIONS BY ION CHROMATOGRAPHY			Method:**E300.0**				Analyst: **EE**
Bromide	**0.92**	J	**0.56**	**1.0**	**mg/L**	5	2/28/2017 13:43
AMMONIA AS NITROGEN			Method:**A4500-NH3 G-97**				Analyst: **JJG**
Ammonia as Nitrogen	**0.54**		**0.0050**	**0.020**	**mg NH3-N/L**	1	2/27/2017 10:07
NITROGEN, NITRATE-NITRITE			Method:**E353.2 R2.0**				Analyst: **JJG**
Nitrogen, Nitrate-Nitrite	**1.2**		**0.013**	**0.020**	**mg/L**	1	3/1/2017 11:25
NITROGEN, TOTAL ORGANIC			Method:**CALCULATION**				Analyst: **JB**
Nitrogen, Total Organic	U		1.0	1.0	mg/L	1	3/1/2017 16:30
PHOSPHORUS, TOTAL			Method:**E365.1 R2.0**				Analyst: **JJG**
Phosphorus, Total	**0.078**		**0.024**	**0.050**	**mg/L**	1	2/28/2017 12:14
PHENOLICS, TOTAL			Method:**E420.4**		Prep: E420.x / 2/28/17		Analyst: **JB**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *27-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 006
Collection Date: 2/22/2017 10:00 AM

Work Order: 17021344
Lab ID: 17021344-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Phenolics, Total	U		0.0020	0.010	mg/L	1	3/1/2017 09:43
NITROGEN, TOTAL KJELDAHL		Method: **A4500-NH3 G-97**			Prep: A4500-N B / 2/28/17		Analyst: **JB**
Nitrogen, Total Kjeldahl	**0.78**	J	**0.48**	**1.0**	**mg/L**	1	3/1/2017 14:51
ORGANIC CARBON, TOTAL		Method: **A5310C-00**					Analyst: **JJG**
Organic Carbon, Total	**2.6**	X	**0.039**	**0.50**	**mg/L**	1	2/27/2017 13:41
SUBCONTRACTED ANALYSES		Method: **SUBCONTRACT**					Analyst: **PACE**
Subcontracted Analyses	**See attached**		**0**		**as noted**	1	3/22/2017

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *27-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Trip Blank
Collection Date: 2/22/2017

Work Order: 17021344
Lab ID: 17021344-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method:**E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	2/27/2017 14:27
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	2/27/2017 14:27
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	2/27/2017 14:27
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	2/27/2017 14:27
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	2/27/2017 14:27
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	2/27/2017 14:27
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	2/27/2017 14:27
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	2/27/2017 14:27
Acrolein	U		2.5	10	µg/L	1	2/27/2017 14:27
Acrylonitrile	U		0.18	1.0	µg/L	1	2/27/2017 14:27
Benzene	U		0.30	1.0	µg/L	1	2/27/2017 14:27
Bromodichloromethane	U		0.23	1.0	µg/L	1	2/27/2017 14:27
Bromoform	U		0.77	1.0	µg/L	1	2/27/2017 14:27
Bromomethane	U		0.38	1.0	µg/L	1	2/27/2017 14:27
Carbon tetrachloride	U		0.31	1.0	µg/L	1	2/27/2017 14:27
Chlorobenzene	U		0.27	1.0	µg/L	1	2/27/2017 14:27
Chloroethane	U		0.29	1.0	µg/L	1	2/27/2017 14:27
Chloroform	U		0.26	1.0	µg/L	1	2/27/2017 14:27
Chloromethane	U		0.17	1.0	µg/L	1	2/27/2017 14:27
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	2/27/2017 14:27
Dibromochloromethane	U		0.38	1.0	µg/L	1	2/27/2017 14:27
Ethylbenzene	U		0.40	1.0	µg/L	1	2/27/2017 14:27
Methylene chloride	U		0.56	5.0	µg/L	1	2/27/2017 14:27
Tetrachloroethene	U		0.27	1.0	µg/L	1	2/27/2017 14:27
Toluene	U		0.37	1.0	µg/L	1	2/27/2017 14:27
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	2/27/2017 14:27
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	2/27/2017 14:27
Vinyl chloride	U		0.20	1.0	µg/L	1	2/27/2017 14:27
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	2/27/2017 14:27
Surr: 1,2-Dichloroethane-d4	*95.6*			*75-120*	*%REC*	1	2/27/2017 14:27
Surr: 4-Bromofluorobenzene	*98.2*			*80-110*	*%REC*	1	2/27/2017 14:27
Surr: Dibromofluoromethane	*93.4*			*85-115*	*%REC*	1	2/27/2017 14:27
Surr: Toluene-d8	*96.8*			*85-110*	*%REC*	1	2/27/2017 14:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **98743** Instrument ID **ICPMS2** Method: **E200.8**

MBLK Sample ID: **MBLK-98743-98743** Units: **mg/L** Analysis Date: **3/1/2017 01:24 PM**

Client ID: Run ID: **ICPMS2_170301A** SeqNo: **4306588** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	U	0.00039	0.0050								

MBLK Sample ID: **MBLK-98739-98743** Units: **mg/L** Analysis Date: **3/1/2017 06:01 PM**

Client ID: Run ID: **ICPMS2_170301A** SeqNo: **4308055** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	U	0.00039	0.0050								

LCS Sample ID: **LCS-98743-98743** Units: **mg/L** Analysis Date: **3/1/2017 01:30 PM**

Client ID: Run ID: **ICPMS2_170301A** SeqNo: **4306589** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.0906	0.00039	0.0050	0.1	0	90.6	85-115	0			

LCS Sample ID: **LCS-98739-98743** Units: **mg/L** Analysis Date: **3/1/2017 06:06 PM**

Client ID: Run ID: **ICPMS2_170301A** SeqNo: **4308056** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.09198	0.00039	0.0050	0.1	0	92	85-115	0			

MS Sample ID: **17021344-01GMS** Units: **mg/L** Analysis Date: **3/1/2017 07:02 PM**

Client ID: **Outfall 006** Run ID: **ICPMS2_170301A** SeqNo: **4308067** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1022	0.00039	0.0050	0.1	0.007329	94.9	70-130	0			

MS Sample ID: **17021362-04AMS** Units: **mg/L** Analysis Date: **3/1/2017 07:48 PM**

Client ID: Run ID: **ICPMS2_170301A** SeqNo: **4308076** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.09317	0.00039	0.0050	0.1	0.001484	91.7	70-130	0			

MSD Sample ID: **17021344-01GMSD** Units: **mg/L** Analysis Date: **3/1/2017 07:07 PM**

Client ID: **Outfall 006** Run ID: **ICPMS2_170301A** SeqNo: **4308068** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1021	0.00039	0.0050	0.1	0.007329	94.8	70-130	0.1022	0.0979	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98743** Instrument ID **ICPMS2** Method: **E200.8**

MSD Sample ID: **17021362-04AMSD** Units: **mg/L** Analysis Date: **3/1/2017 07:53 PM**
Client ID: Run ID: **ICPMS2_170301A** SeqNo: **4308077** Prep Date: **3/1/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.09515	0.00039	0.0050	0.1	0.001484	93.7	70-130	0.09317	2.1	20	

The following samples were analyzed in this batch: 17021344-01G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

MBLK Sample ID: **SBLKW1-98625-98625** Units: **µg/L** Analysis Date: **2/27/2017 03:37 PM**
Client ID: Run ID: **SVMS5_170227A** SeqNo: **4304745** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	0.41	5.0								
1,2-Dichlorobenzene	U	0.39	5.0								
1,2-Diphenylhydrazine	U	0.14	5.0								
1,3-Dichlorobenzene	U	0.65	5.0								
1,4-Dichlorobenzene	U	0.32	5.0								
2,4,6-Trichlorophenol	U	0.25	5.0								
2,4-Dichlorophenol	U	0.35	5.0								
2,4-Dimethylphenol	U	0.36	5.0								
2,4-Dinitrophenol	U	0.4	5.0								
2,4-Dinitrotoluene	U	0.42	5.0								
2,6-Dinitrotoluene	U	0.11	5.0								
2-Chloronaphthalene	U	0.075	5.0								
2-Chlorophenol	U	0.23	5.0								
2-Nitrophenol	U	0.34	5.0								
3,3´-Dichlorobenzidine	U	1.6	5.0								
4,6-Dinitro-2-methylphenol	U	0.27	5.0								
4-Bromophenyl phenyl ether	U	0.33	5.0								
4-Chloro-3-methylphenol	U	0.26	5.0								
4-Chlorophenyl phenyl ether	U	0.31	5.0								
4-Nitrophenol	U	0.24	5.0								
Acenaphthene	U	0.081	5.0								
Acenaphthylene	U	0.075	5.0								
Anthracene	U	0.028	5.0								
Benzidine	U	2	10								
Benzo(a)anthracene	U	0.022	5.0								
Benzo(a)pyrene	U	0.044	5.0								
Benzo(b)fluoranthene	U	0.051	5.0								
Benzo(g,h,i)perylene	U	0.03	5.0								
Benzo(k)fluoranthene	U	0.048	5.0								
Bis(2-chloroethoxy)methane	U	0.29	5.0								
Bis(2-chloroisopropyl)ether	U	0.23	5.0								
Bis(2-ethylhexyl)phthalate	U	0.4	5.0								
Butyl benzyl phthalate	U	0.3	5.0								
Chrysene	U	0.048	5.0								
Dibenzo(a,h)anthracene	U	0.03	5.0								
Diethyl phthalate	U	0.17	5.0								
Di-n-butyl phthalate	U	0.21	5.0								
Di-n-octyl phthalate	U	0.15	5.0								
Fluoranthene	U	0.038	5.0								
Fluorene	U	0.051	5.0								
Hexachlorobenzene	U	0.44	5.0								
Hexachlorobutadiene	U	0.28	5.0								
Hexachlorocyclopentadiene	U	1.1	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

Hexachloroethane	U	0.21	5.0					
Indeno(1,2,3-cd)pyrene	U	0.067	5.0					
Isophorone	U	0.34	5.0					
Naphthalene	U	0.067	5.0					
Nitrobenzene	U	0.26	5.0					
N-Nitrosodimethylamine	U	0.48	5.0					
N-Nitrosodi-n-propylamine	U	0.35	5.0					
N-Nitrosodiphenylamine	U	0.23	5.0					
Pentachlorophenol	U	0.97	5.0					
Phenanthrene	U	0.03	5.0					
Phenol	U	0.21	5.0					
Pyrene	U	0.036	5.0					
Surr: 2,4,6-Tribromophenol	*37.88*	0	0	*50*	0	*75.8*	*38-115*	0
Surr: 2-Fluorobiphenyl	*40.13*	0	0	*50*	0	*80.3*	*32-100*	0
Surr: 2-Fluorophenol	*24.61*	0	0	*50*	0	*49.2*	*22-59*	0
Surr: 4-Terphenyl-d14	*44.12*	0	0	*50*	0	*88.2*	*23-112*	0
Surr: Nitrobenzene-d5	*36.31*	0	0	*50*	0	*72.6*	*31-93*	0
Surr: Phenol-d6	*15.16*	0	0	*50*	0	*30.3*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

LCS Sample ID: **SLCSW1-98625-98625** Units: **µg/L** Analysis Date: **2/27/2017 04:01 PM**
Client ID: Run ID: **SVMS5_170227A** SeqNo: **4304746** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	12.82	0.41	5.0	20	0	64.1	35-105	0			
1,2-Dichlorobenzene	13.5	0.39	5.0	20	0	67.5	35-100	0			
1,2-Diphenylhydrazine	17.5	0.14	5.0	20	0	87.5	55-115	0			
1,3-Dichlorobenzene	12.71	0.65	5.0	20	0	63.6	30-100	0			
1,4-Dichlorobenzene	13.25	0.32	5.0	20	0	66.2	30-100	0			
2,4,6-Trichlorophenol	14.32	0.25	5.0	20	0	71.6	50-115	0			
2,4-Dichlorophenol	14.49	0.35	5.0	20	0	72.4	50-105	0			
2,4-Dimethylphenol	13.33	0.36	5.0	20	0	66.6	30-110	0			
2,4-Dinitrophenol	12.44	0.4	5.0	20	0	62.2	15-140	0			
2,4-Dinitrotoluene	15.87	0.42	5.0	20	0	79.4	50-120	0			
2,6-Dinitrotoluene	15.87	0.11	5.0	20	0	79.4	50-115	0			
2-Chloronaphthalene	15.5	0.075	5.0	20	0	77.5	50-105	0			
2-Chlorophenol	15.17	0.23	5.0	20	0	75.8	35-105	0			
2-Nitrophenol	14.6	0.34	5.0	20	0	73	40-115	0			
3,3'-Dichlorobenzidine	13.05	1.6	5.0	20	0	65.2	30-120	0			
4,6-Dinitro-2-methylphenol	15.91	0.27	5.0	20	0	79.6	40-130	0			
4-Bromophenyl phenyl ether	16.46	0.33	5.0	20	0	82.3	50-115	0			
4-Chloro-3-methylphenol	15.86	0.26	5.0	20	0	79.3	45-110	0			
4-Chlorophenyl phenyl ether	16.02	0.31	5.0	20	0	80.1	50-110	0			
4-Nitrophenol	7.25	0.24	5.0	20	0	36.2	10-58	0			
Acenaphthene	16.05	0.081	5.0	20	0	80.2	45-110	0			
Acenaphthylene	16.64	0.075	5.0	20	0	83.2	50-105	0			
Anthracene	17.38	0.028	5.0	20	0	86.9	55-110	0			
Benzo(a)anthracene	17.43	0.022	5.0	20	0	87.2	55-110	0			
Benzo(a)pyrene	17.87	0.044	5.0	20	0	89.4	55-110	0			
Benzo(b)fluoranthene	17.93	0.051	5.0	20	0	89.6	45-120	0			
Benzo(g,h,i)perylene	18.2	0.03	5.0	20	0	91	40-125	0			
Benzo(k)fluoranthene	17.79	0.048	5.0	20	0	89	45-125	0			
Bis(2-chloroethoxy)methane	15.87	0.29	5.0	20	0	79.4	45-105	0			
Bis(2-ethylhexyl)phthalate	19.01	0.4	5.0	20	0	95	40-125	0			
Butyl benzyl phthalate	17.57	0.3	5.0	20	0	87.8	45-115	0			
Chrysene	17.87	0.048	5.0	20	0	89.4	55-110	0			
Dibenzo(a,h)anthracene	18.15	0.03	5.0	20	0	90.8	40-125	0			
Diethyl phthalate	16.98	0.17	5.0	20	0	84.9	40-120	0			
Di-n-butyl phthalate	18.88	0.21	5.0	20	0	94.4	55-115	0			
Di-n-octyl phthalate	18.69	0.15	5.0	20	0	93.4	35-135	0			
Fluoranthene	17.48	0.038	5.0	20	0	87.4	55-115	0			
Fluorene	16.79	0.051	5.0	20	0	84	50-110	0			
Hexachlorobenzene	17.18	0.44	5.0	20	0	85.9	50-110	0			
Hexachlorobutadiene	12.33	0.28	5.0	20	0	61.6	25-105	0			
Hexachlorocyclopentadiene	10.16	1.1	5.0	20	0	50.8	25-105	0			
Hexachloroethane	12.85	0.21	5.0	20	0	64.2	30-95	0			
Indeno(1,2,3-cd)pyrene	17.74	0.067	5.0	20	0	88.7	45-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

Isophorone	16.68	0.34	5.0	20	0	83.4	50-110	0
Naphthalene	14.59	0.067	5.0	20	0	73	40-100	0
Nitrobenzene	15.67	0.26	5.0	20	0	78.4	45-110	0
N-Nitrosodimethylamine	11.02	0.48	5.0	20	0	55.1	25-110	0
N-Nitrosodi-n-propylamine	18.07	0.35	5.0	20	0	90.4	35-130	0
N-Nitrosodiphenylamine	17.33	0.23	5.0	20	0	86.6	50-110	0
Pentachlorophenol	13.89	0.97	5.0	20	0	69.4	40-115	0
Phenanthrene	17.16	0.03	5.0	20	0	85.8	50-115	0
Phenol	5.7	0.21	5.0	20	0	28.5	12-43	0
Pyrene	17.75	0.036	5.0	20	0	88.8	50-130	0
Surr: 2,4,6-Tribromophenol	*40.01*	0	0	*50*	0	*80*	*38-115*	0
Surr: 2-Fluorobiphenyl	*40.04*	0	0	*50*	0	*80.1*	*32-100*	0
Surr: 2-Fluorophenol	*21.76*	0	0	*50*	0	*43.5*	*22-59*	0
Surr: 4-Terphenyl-d14	*43.02*	0	0	*50*	0	*86*	*23-112*	0
Surr: Nitrobenzene-d5	*39.38*	0	0	*50*	0	*78.8*	*31-93*	0
Surr: Phenol-d6	*13.91*	0	0	*50*	0	*27.8*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

MS Sample ID: **17021221-02A MS** Units: **µg/L** Analysis Date: **2/27/2017 08:01 PM**
Client ID: Run ID: **SVMS5_170227A** SeqNo: **4304747** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	222.8	8.2	100	400	0	55.7	35-105	0			
1,2-Dichlorobenzene	238.6	7.8	100	400	0	59.6	35-100	0			
1,2-Diphenylhydrazine	311.4	2.8	100	400	0	77.8	55-115	0			
1,3-Dichlorobenzene	230.8	13	100	400	0	57.7	30-100	0			
1,4-Dichlorobenzene	232.2	6.4	100	400	0	58	30-100	0			
2,4,6-Trichlorophenol	313.2	5	100	400	0	78.3	50-115	0			
2,4-Dichlorophenol	366.6	7	100	400	0	91.6	50-105	0			
2,4-Dimethylphenol	295.4	7.2	100	400	0	73.8	30-110	0			
2,4-Dinitrophenol	268.4	8	100	400	0	67.1	15-140	0			
2,4-Dinitrotoluene	296.8	8.4	100	400	0	74.2	50-120	0			
2,6-Dinitrotoluene	296.8	2.2	100	400	0	74.2	50-115	0			
2-Chloronaphthalene	259.2	1.5	100	400	0	64.8	50-105	0			
2-Chlorophenol	273.4	4.6	100	400	0	68.4	35-105	0			
2-Nitrophenol	241.8	6.8	100	400	0	60.4	40-115	0			
3,3´-Dichlorobenzidine	149.2	32	100	400	0	37.3	30-120	0			
4,6-Dinitro-2-methylphenol	200.6	5.4	100	400	0	50.2	40-130	0			
4-Bromophenyl phenyl ether	302.8	6.6	100	400	0	75.7	50-115	0			
4-Chloro-3-methylphenol	382.4	5.2	100	400	0	95.6	45-110	0			
4-Chlorophenyl phenyl ether	297.8	6.2	100	400	0	74.4	50-110	0			
4-Nitrophenol	180	4.8	100	400	0	45	10-58	0			
Acenaphthene	275.2	1.6	100	400	0	68.8	45-110	0			
Acenaphthylene	286.2	1.5	100	400	0	71.6	50-105	0			
Anthracene	334.6	0.56	100	400	0	83.6	55-110	0			
Benzo(a)anthracene	326.6	0.44	100	400	0	81.6	55-110	0			
Benzo(a)pyrene	342.8	0.88	100	400	0	85.7	55-110	0			
Benzo(b)fluoranthene	347.2	1	100	400	0	86.8	45-120	0			
Benzo(g,h,i)perylene	319.6	0.6	100	400	0	79.9	40-125	0			
Benzo(k)fluoranthene	316.2	0.96	100	400	0	79	45-125	0			
Bis(2-chloroethoxy)methane	269.2	5.8	100	400	0	67.3	45-105	0			
Bis(2-ethylhexyl)phthalate	322.8	8	100	400	0	80.7	40-125	0			
Butyl benzyl phthalate	324.6	6	100	400	0	81.2	45-115	0			
Chrysene	318.4	0.96	100	400	0	79.6	55-110	0			
Dibenzo(a,h)anthracene	333.2	0.6	100	400	0	83.3	40-125	0			
Diethyl phthalate	304.8	3.4	100	400	0	76.2	40-120	0			
Di-n-butyl phthalate	342.2	4.2	100	400	0	85.6	55-115	0			
Di-n-octyl phthalate	405.2	3	100	400	0	101	35-135	0			
Fluoranthene	359.2	0.76	100	400	0	89.8	55-115	0			
Fluorene	305.8	1	100	400	0	76.4	50-110	0			
Hexachlorobenzene	291.8	8.8	100	400	0	73	50-110	0			
Hexachlorobutadiene	219.8	5.6	100	400	0	55	25-105	0			
Hexachlorocyclopentadiene	115.4	22	100	400	0	28.8	25-105	0			
Hexachloroethane	236.6	4.2	100	400	0	59.2	30-95	0			
Indeno(1,2,3-cd)pyrene	359	1.3	100	400	0	89.8	45-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

Isophorone	255.2	6.8	100	400	0	63.8	50-110	0	
Naphthalene	246.2	1.3	100	400	4.2	60.5	40-100	0	
Nitrobenzene	233.6	5.2	100	400	0	58.4	45-110	0	
N-Nitrosodimethylamine	14620	9.6	100	400	0	3650	25-110	0	SE
N-Nitrosodi-n-propylamine	255.2	7	100	400	0	63.8	35-130	0	
N-Nitrosodiphenylamine	321.8	4.6	100	400	0	80.4	50-110	0	
Pentachlorophenol	360	19	100	400	0	90	40-115	0	
Phenanthrene	314.8	0.6	100	400	0	78.7	50-115	0	
Phenol	166.4	4.2	100	400	0	41.6	12-43	0	
Pyrene	347	0.72	100	400	0	86.8	50-130	0	
Surr: 2,4,6-Tribromophenol	*754.6*	0	0	*1000*	0	*75.5*	*38-115*	0	
Surr: 2-Fluorobiphenyl	*635.2*	0	0	*1000*	0	*63.5*	*32-100*	0	
Surr: 2-Fluorophenol	*407.8*	0	0	*1000*	0	*40.8*	*22-59*	0	
Surr: 4-Terphenyl-d14	*845.2*	0	0	*1000*	0	*84.5*	*23-112*	0	
Surr: Nitrobenzene-d5	*538.6*	0	0	*1000*	0	*53.9*	*31-93*	0	
Surr: Phenol-d6	*299*	0	0	*1000*	0	*29.9*	*13-36*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

MSD Sample ID: **17021221-02A MSD** Units: **µg/L** Analysis Date: **2/27/2017 08:24 PM**
Client ID: Run ID: **SVMS5_170227A** SeqNo: **4304748** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	236.4	8.2	100	400	0	59.1	35-105	222.8	5.92	30	
1,2-Dichlorobenzene	238	7.8	100	400	0	59.5	35-100	238.6	0.252	30	
1,2-Diphenylhydrazine	281.4	2.8	100	400	0	70.4	55-115	311.4	10.1	30	
1,3-Dichlorobenzene	232	13	100	400	0	58	30-100	230.8	0.519	30	
1,4-Dichlorobenzene	238.8	6.4	100	400	0	59.7	30-100	232.2	2.8	30	
2,4,6-Trichlorophenol	309.2	5	100	400	0	77.3	50-115	313.2	1.29	30	
2,4-Dichlorophenol	381.8	7	100	400	0	95.4	50-105	366.6	4.06	30	
2,4-Dimethylphenol	290.8	7.2	100	400	0	72.7	30-110	295.4	1.57	30	
2,4-Dinitrophenol	295	8	100	400	0	73.8	15-140	268.4	9.44	30	
2,4-Dinitrotoluene	304	8.4	100	400	0	76	50-120	296.8	2.4	30	
2,6-Dinitrotoluene	304	2.2	100	400	0	76	50-115	296.8	2.4	30	
2-Chloronaphthalene	263	1.5	100	400	0	65.8	50-105	259.2	1.46	30	
2-Chlorophenol	273.4	4.6	100	400	0	68.4	35-105	273.4	0	30	
2-Nitrophenol	247	6.8	100	400	0	61.8	40-115	241.8	2.13	30	
3,3'-Dichlorobenzidine	127.2	32	100	400	0	31.8	30-120	149.2	15.9	30	
4,6-Dinitro-2-methylphenol	208	5.4	100	400	0	52	40-130	200.6	3.62	30	
4-Bromophenyl phenyl ether	311.8	6.6	100	400	0	78	50-115	302.8	2.93	30	
4-Chloro-3-methylphenol	378.2	5.2	100	400	0	94.6	45-110	382.4	1.1	30	
4-Chlorophenyl phenyl ether	307.6	6.2	100	400	0	76.9	50-110	297.8	3.24	30	
4-Nitrophenol	170.6	4.8	100	400	0	42.6	10-58	180	5.36	30	
Acenaphthene	277.2	1.6	100	400	0	69.3	45-110	275.2	0.724	30	
Acenaphthylene	285.6	1.5	100	400	0	71.4	50-105	286.2	0.21	30	
Anthracene	335.2	0.56	100	400	0	83.8	55-110	334.6	0.179	30	
Benzo(a)anthracene	320.4	0.44	100	400	0	80.1	55-110	326.6	1.92	30	
Benzo(a)pyrene	333	0.88	100	400	0	83.2	55-110	342.8	2.9	30	
Benzo(b)fluoranthene	339	1	100	400	0	84.8	45-120	347.2	2.39	30	
Benzo(g,h,i)perylene	314.6	0.6	100	400	0	78.6	40-125	319.6	1.58	30	
Benzo(k)fluoranthene	312.6	0.96	100	400	0	78.2	45-125	316.2	1.15	30	
Bis(2-chloroethoxy)methane	269.6	5.8	100	400	0	67.4	45-105	269.2	0.148	30	
Bis(2-ethylhexyl)phthalate	318.4	8	100	400	0	79.6	40-125	322.8	1.37	30	
Butyl benzyl phthalate	322.4	6	100	400	0	80.6	45-115	324.6	0.68	30	
Chrysene	313.6	0.96	100	400	0	78.4	55-110	318.4	1.52	30	
Dibenzo(a,h)anthracene	325.2	0.6	100	400	0	81.3	40-125	333.2	2.43	30	
Diethyl phthalate	298.4	3.4	100	400	0	74.6	40-120	304.8	2.12	30	
Di-n-butyl phthalate	336.6	4.2	100	400	0	84.2	55-115	342.2	1.65	30	
Di-n-octyl phthalate	403	3	100	400	0	101	35-135	405.2	0.544	30	
Fluoranthene	349.4	0.76	100	400	0	87.4	55-115	359.2	2.77	30	
Fluorene	313.4	1	100	400	0	78.4	50-110	305.8	2.45	30	
Hexachlorobenzene	304.2	8.8	100	400	0	76	50-110	291.8	4.16	30	
Hexachlorobutadiene	234.2	5.6	100	400	0	58.6	25-105	219.8	6.34	30	
Hexachlorocyclopentadiene	124	22	100	400	0	31	25-105	115.4	7.18	30	
Hexachloroethane	244.6	4.2	100	400	0	61.2	30-95	236.6	3.33	30	
Indeno(1,2,3-cd)pyrene	351.2	1.3	100	400	0	87.8	45-125	359	2.2	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98625** Instrument ID **SVMS5** Method: **E625**

Isophorone	254.8	6.8	100	400	0	63.7	50-110	255.2	0.157	30	
Naphthalene	252.4	1.3	100	400	4.2	62	40-100	246.2	2.49	30	
Nitrobenzene	246.6	5.2	100	400	0	61.6	45-110	233.6	5.41	30	
N-Nitrosodimethylamine	13910	9.6	100	400	0	3480	25-110	14620	4.95	30	SE
N-Nitrosodi-n-propylamine	253.6	7	100	400	0	63.4	35-130	255.2	0.629	30	
N-Nitrosodiphenylamine	323.6	4.6	100	400	0	80.9	50-110	321.8	0.558	30	
Pentachlorophenol	384.4	19	100	400	0	96.1	40-115	360	6.56	30	
Phenanthrene	319.6	0.6	100	400	0	79.9	50-115	314.8	1.51	30	
Phenol	164.6	4.2	100	400	0	41.2	12-43	166.4	1.09	30	
Pyrene	331	0.72	100	400	0	82.8	50-130	347	4.72	30	
Surr: 2,4,6-Tribromophenol	*777.6*	0	0	*1000*	0	*77.8*	*38-115*	754.6	*3*	*40*	
Surr: 2-Fluorobiphenyl	*620.4*	0	0	*1000*	0	*62*	*32-100*	635.2	*2.36*	*40*	
Surr: 2-Fluorophenol	*409*	0	0	*1000*	0	*40.9*	*22-59*	407.8	*0.294*	*40*	
Surr: 4-Terphenyl-d14	*767.4*	0	0	*1000*	0	*76.7*	*23-112*	845.2	*9.65*	*40*	
Surr: Nitrobenzene-d5	*565*	0	0	*1000*	0	*56.5*	*31-93*	538.6	*4.78*	*40*	
Surr: Phenol-d6	*295*	0	0	*1000*	0	*29.5*	*13-36*	299	*1.35*	*40*	

The following samples were analyzed in this batch: 17021344-01P

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R206735b** Instrument ID **VMS6** Method: **E624**

MBLK Sample ID: **VBLKW1-170227-R206735b** Units: **µg/L** Analysis Date: **2/27/2017 01:34 PM**

Client ID: Run ID: **VMS6_170227A** SeqNo: **4304287** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	0.36	1.0								
1,1,2,2-Tetrachloroethane	U	0.19	1.0								
1,1,2-Trichloroethane	U	0.4	1.0								
1,1-Dichloroethane	U	0.31	1.0								
1,1-Dichloroethene	U	0.28	1.0								
1,2-Dichloroethane	U	0.17	1.0								
1,2-Dichloropropane	U	0.25	1.0								
2-Chloroethyl vinyl ether	U	10	10								
Acrolein	U	2.5	10								
Acrylonitrile	U	0.18	1.0								
Benzene	U	0.3	1.0								
Bromodichloromethane	U	0.23	1.0								
Bromoform	U	0.77	1.0								
Bromomethane	U	0.38	1.0								
Carbon tetrachloride	U	0.31	1.0								
Chlorobenzene	U	0.27	1.0								
Chloroethane	U	0.29	1.0								
Chloroform	U	0.26	1.0								
Chloromethane	U	0.17	1.0								
cis-1,3-Dichloropropene	U	0.39	1.0								
Dibromochloromethane	U	0.38	1.0								
Ethylbenzene	U	0.4	1.0								
Methylene chloride	U	0.56	5.0								
Tetrachloroethene	U	0.27	1.0								
Toluene	U	0.37	1.0								
trans-1,2-Dichloroethene	U	0.28	1.0								
trans-1,3-Dichloropropene	U	0.82	1.0								
Vinyl chloride	U	0.2	1.0								
1,3-Dichloropropene, Total	U	1.2	2.0								
Surr: 1,2-Dichloroethane-d4	*19.3*	0	0	*20*	0	*96.5*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.58*	0	0	*20*	0	*97.9*	*80-110*	0			
Surr: Dibromofluoromethane	*18.72*	0	0	*20*	0	*93.6*	*85-115*	0			
Surr: Toluene-d8	*19.29*	0	0	*20*	0	*96.4*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R206735b** Instrument ID **VMS6** Method: **E624**

LCS Sample ID: **VLCSW1-170227-R206735b** Units: **µg/L** Analysis Date: **2/27/2017 11:48 AM**
Client ID: Run ID: **VMS6_170227A** SeqNo: **4304286** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.68	0.36	1.0	20	0	103	75-130	0			
1,1,2,2-Tetrachloroethane	18.42	0.19	1.0	20	0	92.1	75-130	0			
1,1,2-Trichloroethane	18.54	0.4	1.0	20	0	92.7	75-125	0			
1,1-Dichloroethane	20.65	0.31	1.0	20	0	103	75-133	0			
1,1-Dichloroethene	22.81	0.28	1.0	20	0	114	70-145	0			
1,2-Dichloroethane	19.39	0.17	1.0	20	0	97	78-125	0			
1,2-Dichloropropane	19.43	0.25	1.0	20	0	97.2	75-125	0			
Acrylonitrile	20.09	0.18	1.0	20	0	100	60-140	0			
Benzene	21.28	0.3	1.0	20	0	106	85-125	0			
Bromodichloromethane	19.04	0.23	1.0	20	0	95.2	75-125	0			
Bromoform	18.05	0.77	1.0	20	0	90.2	60-125	0			
Bromomethane	26.31	0.38	1.0	20	0	132	30-185	0			
Carbon tetrachloride	20.85	0.31	1.0	20	0	104	65-140	0			
Chlorobenzene	19.37	0.27	1.0	20	0	96.8	80-120	0			
Chloroethane	20.19	0.29	1.0	20	0	101	50-140	0			
Chloroform	19.26	0.26	1.0	20	0	96.3	80-130	0			
Chloromethane	21.87	0.17	1.0	20	0	109	46-148	0			
cis-1,3-Dichloropropene	21.54	0.39	1.0	20	0	108	70-130	0			
Dibromochloromethane	18.02	0.38	1.0	20	0	90.1	60-115	0			
Ethylbenzene	18.24	0.4	1.0	20	0	91.2	85-125	0			
Methylene chloride	20.94	0.56	5.0	20	0	105	75-140	0			
Tetrachloroethene	18.99	0.27	1.0	20	0	95	68-166	0			
Toluene	21.03	0.37	1.0	20	0	105	85-125	0			
trans-1,2-Dichloroethene	21.24	0.28	1.0	20	0	106	80-140	0			
trans-1,3-Dichloropropene	21.38	0.82	1.0	20	0	107	56-132	0			
Vinyl chloride	22.05	0.2	1.0	20	0	110	50-136	0			
Surr: 1,2-Dichloroethane-d4	*18.04*	0	0	*20*	0	*90.2*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*21.57*	0	0	*20*	0	*108*	*80-110*	0			
Surr: Dibromofluoromethane	*18.38*	0	0	*20*	0	*91.9*	*85-115*	0			
Surr: Toluene-d8	*19.86*	0	0	*20*	0	*99.3*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206735b** Instrument ID **VMS6** Method: **E624**

MS Sample ID: **17021164-04A MS** Units: **µg/L** Analysis Date: **2/27/2017 10:44 PM**
Client ID: Run ID: **VMS6_170227A** SeqNo: **4304291** Prep Date: DF: **5**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	108.3	1.8	5.0	100	0	108	75-130	0			
1,1,2,2-Tetrachloroethane	90.7	0.93	5.0	100	0	90.7	75-130	0			
1,1,2-Trichloroethane	91.75	2	5.0	100	0	91.8	75-125	0			
1,1-Dichloroethane	117	1.5	5.0	100	0	117	75-133	0			
1,1-Dichloroethene	129.6	1.4	5.0	100	0	130	70-145	0			
1,2-Dichloroethane	98.65	0.83	5.0	100	0	98.6	78-125	0			
1,2-Dichloropropane	101.2	1.2	5.0	100	0	101	75-125	0			
Acrylonitrile	110.1	0.88	5.0	100	0	110	60-140	0			
Benzene	115.6	1.5	5.0	100	0	116	85-125	0			
Bromodichloromethane	95.85	1.2	5.0	100	0	95.8	75-125	0			
Bromoform	79.55	3.8	5.0	100	0	79.6	60-125	0			
Bromomethane	126.7	1.9	5.0	100	0	127	30-185	0			
Carbon tetrachloride	109.2	1.6	5.0	100	0	109	65-140	0			
Chlorobenzene	101	1.4	5.0	100	0	101	80-120	0			
Chloroethane	116.6	1.5	5.0	100	0	117	50-140	0			
Chloroform	111.8	1.3	5.0	100	0	112	80-130	0			
Chloromethane	129.3	0.86	5.0	100	0	129	46-148	0			
cis-1,3-Dichloropropene	104.7	2	5.0	100	0	105	70-130	0			
Dibromochloromethane	82.65	1.9	5.0	100	0	82.6	60-115	0			
Ethylbenzene	99.75	2	5.0	100	0	99.8	85-125	0			
Methylene chloride	119.4	2.8	25	100	0	119	75-140	0			
Tetrachloroethene	103	1.4	5.0	100	0	103	68-166	0			
Toluene	109.6	1.8	5.0	100	0	110	85-125	0			
trans-1,2-Dichloroethene	126	1.4	5.0	100	0	126	80-140	0			
trans-1,3-Dichloropropene	94.55	4.1	5.0	100	0	94.6	56-132	0			
Vinyl chloride	917.2	1	5.0	100	759.6	158	50-136	0			SEO
Surr: 1,2-Dichloroethane-d4	*92.1*	0	0	*100*	0	*92.1*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*108*	0	0	*100*	0	*108*	*80-110*	0			
Surr: Dibromofluoromethane	*91.35*	0	0	*100*	0	*91.4*	*85-115*	0			
Surr: Toluene-d8	*96.05*	0	0	*100*	0	*96*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206735b** Instrument ID **VMS6** Method: **E624**

MSD Sample ID: **17021164-04A MSD** Units: **µg/L** Analysis Date: **2/27/2017 11:11 PM**
Client ID: Run ID: **VMS6_170227A** SeqNo: **4304292** Prep Date: DF: **5**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	124.6	1.8	5.0	100	0	125	75-130	108.3	14	30	
1,1,2,2-Tetrachloroethane	103.2	0.93	5.0	100	0	103	75-130	90.7	12.9	30	
1,1,2-Trichloroethane	104	2	5.0	100	0	104	75-125	91.75	12.5	30	
1,1-Dichloroethane	133.6	1.5	5.0	100	0	134	75-133	117	13.2	30	S
1,1-Dichloroethene	148.6	1.4	5.0	100	0	149	70-145	129.6	13.7	30	S
1,2-Dichloroethane	110.3	0.83	5.0	100	0	110	78-125	98.65	11.2	30	
1,2-Dichloropropane	113.4	1.2	5.0	100	0	113	75-125	101.2	11.5	30	
Acrylonitrile	126.6	0.88	5.0	100	0	127	60-140	110.1	13.9	30	
Benzene	130	1.5	5.0	100	0	130	85-125	115.6	11.7	30	S
Bromodichloromethane	110	1.2	5.0	100	0	110	75-125	95.85	13.7	30	
Bromoform	91.3	3.8	5.0	100	0	91.3	60-125	79.55	13.8	30	
Bromomethane	154.6	1.9	5.0	100	0	155	30-185	126.7	19.9	30	
Carbon tetrachloride	124.2	1.6	5.0	100	0	124	65-140	109.2	12.8	30	
Chlorobenzene	113.9	1.4	5.0	100	0	114	80-120	101	12	30	
Chloroethane	129.5	1.5	5.0	100	0	130	50-140	116.6	10.5	30	
Chloroform	125.6	1.3	5.0	100	0	126	80-130	111.8	11.7	30	
Chloromethane	143.5	0.86	5.0	100	0	144	46-148	129.3	10.4	30	
cis-1,3-Dichloropropene	120.4	2	5.0	100	0	120	70-130	104.7	14	30	
Dibromochloromethane	96	1.9	5.0	100	0	96	60-115	82.65	14.9	30	
Ethylbenzene	110.4	2	5.0	100	0	110	85-125	99.75	10.2	30	
Methylene chloride	133.1	2.8	25	100	0	133	75-140	119.4	10.9	30	
Tetrachloroethene	115	1.4	5.0	100	0	115	68-166	103	11.1	30	
Toluene	122.6	1.8	5.0	100	0	123	85-125	109.6	11.2	30	
trans-1,2-Dichloroethene	138.2	1.4	5.0	100	0	138	80-140	126	9.24	30	
trans-1,3-Dichloropropene	108.4	4.1	5.0	100	0	108	56-132	94.55	13.6	30	
Vinyl chloride	965.2	1	5.0	100	759.6	206	50-136	917.2	5.09	30	SEO
Surr: 1,2-Dichloroethane-d4	*90.95*	0	0	*100*	0	*91*	*75-120*	92.1	*1.26*	*30*	
Surr: 4-Bromofluorobenzene	*106.8*	0	0	*100*	0	*107*	*80-110*	108	*1.12*	*30*	
Surr: Dibromofluoromethane	*93.35*	0	0	*100*	0	*93.4*	*85-115*	91.35	*2.17*	*30*	
Surr: Toluene-d8	*97.55*	0	0	*100*	0	*97.6*	*85-110*	96.05	*1.55*	*30*	

The following samples were analyzed in this batch: 17021344-01O 17021344-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98662** Instrument ID **LACHAT** Method: **E335.4 R1.0**

MBLK Sample ID: **MBLK-98662-98662** Units: **mg/L** Analysis Date: **2/28/2017 02:05 PM**
Client ID: Run ID: **LACHAT_170228C** SeqNo: **4305249** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.002	0.0050								

LCS Sample ID: **LCS-98662-98662** Units: **mg/L** Analysis Date: **2/28/2017 02:05 PM**
Client ID: Run ID: **LACHAT_170228C** SeqNo: **4305250** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2497	0.002	0.0050	0.25	0	99.9	90-110	0			

MS Sample ID: **17021202-02B MS** Units: **mg/L** Analysis Date: **2/28/2017 02:05 PM**
Client ID: Run ID: **LACHAT_170228C** SeqNo: **4305253** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2748	0.002	0.0050	0.25	0.01042	106	90-110	0			

MS Sample ID: **17021288-02B MS** Units: **mg/L** Analysis Date: **2/28/2017 02:05 PM**
Client ID: Run ID: **LACHAT_170228C** SeqNo: **4305258** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3702	0.002	0.0050	0.25	0.108	105	90-110	0			

MSD Sample ID: **17021202-02B MSD** Units: **mg/L** Analysis Date: **2/28/2017 02:05 PM**
Client ID: Run ID: **LACHAT_170228C** SeqNo: **4305254** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2605	0.002	0.0050	0.25	0.01042	100	90-110	0.2748	5.34	20	

MSD Sample ID: **17021288-02B MSD** Units: **mg/L** Analysis Date: **2/28/2017 02:05 PM**
Client ID: Run ID: **LACHAT_170228C** SeqNo: **4305259** Prep Date: **2/27/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3451	0.002	0.0050	0.25	0.108	94.8	90-110	0.3702	7.02	20	

The following samples were analyzed in this batch: 17021344-01H

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98696** Instrument ID **LACHAT** Method: **A4500-NH3 G-97**

MBLK Sample ID: **MBLK-98696-98696** Units: **mg/L** Analysis Date: **3/1/2017 02:51 PM**
Client ID: Run ID: **LACHAT_170301B** SeqNo: **4306928** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	U	0.48	1.0								

LCS Sample ID: **LCS-98696-98696** Units: **mg/L** Analysis Date: **3/1/2017 02:51 PM**
Client ID: Run ID: **LACHAT_170301B** SeqNo: **4306929** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	10.35	0.48	1.0	10	0	104	85-110	0			

MS Sample ID: **17021344-01D MS** Units: **mg/L** Analysis Date: **3/1/2017 02:51 PM**
Client ID: **Outfall 006** Run ID: **LACHAT_170301B** SeqNo: **4306934** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	5.058	0.48	1.0	10	0.7789	42.8	75-125	0			S

MSD Sample ID: **17021344-01D MSD** Units: **mg/L** Analysis Date: **3/1/2017 02:51 PM**
Client ID: **Outfall 006** Run ID: **LACHAT_170301B** SeqNo: **4306935** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	5.148	0.48	1.0	10	0.7789	43.7	75-125	5.058	1.76	30	S

LCS2 Sample ID: **LCS2-98696-98696** Units: **mg/L** Analysis Date: **3/1/2017 02:51 PM**
Client ID: Run ID: **LACHAT_170301B** SeqNo: **4306936** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	10.5	0.48	1.0	10	0	105	85-110	0			

The following samples were analyzed in this batch: 17021344-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98707** Instrument ID **LACHAT** Method: **E420.4**

MBLK Sample ID: **MBLK-98707-98707** Units: **mg/L** Analysis Date: **3/1/2017 09:43 AM**
Client ID: Run ID: **LACHAT_170301A** SeqNo: **4306529** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	U	0.002	0.010								

LCS Sample ID: **LCS-98707-98707** Units: **mg/L** Analysis Date: **3/1/2017 09:43 AM**
Client ID: Run ID: **LACHAT_170301A** SeqNo: **4306530** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.09368	0.002	0.010	0.1	0	93.7	90-110	0			

MS Sample ID: **17021374-02A MS** Units: **mg/L** Analysis Date: **3/1/2017 09:43 AM**
Client ID: Run ID: **LACHAT_170301A** SeqNo: **4306532** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1086	0.002	0.010	0.1	0.006073	103	90-110	0			

MSD Sample ID: **17021374-02A MSD** Units: **mg/L** Analysis Date: **3/1/2017 09:43 AM**
Client ID: Run ID: **LACHAT_170301A** SeqNo: **4306533** Prep Date: **2/28/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1086	0.002	0.010	0.1	0.006073	103	90-110	0.1086	0	20	

The following samples were analyzed in this batch: 17021344-01I

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206780** Instrument ID **LACHAT2** Method: **A4500-NH3 G-97**

MBLK Sample ID: **MBLK-R206780** Units: **mg NH3-N/L** Analysis Date: **2/27/2017 10:07 AM**
Client ID: Run ID: **LACHAT2_170227E** SeqNo: **4303947** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	U	0.005	0.020								

LCS Sample ID: **LCS-R206780** Units: **mg NH3-N/L** Analysis Date: **2/27/2017 10:07 AM**
Client ID: Run ID: **LACHAT2_170227E** SeqNo: **4303948** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	1.014	0.005	0.020	1	0	101	80-120	0			

MS Sample ID: **17021286-07B MS** Units: **mg NH3-N/L** Analysis Date: **2/27/2017 10:07 AM**
Client ID: Run ID: **LACHAT2_170227E** SeqNo: **4303950** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	1.051	0.005	0.020	1	0.06167	98.9	75-125	0			

MSD Sample ID: **17021286-07B MSD** Units: **mg NH3-N/L** Analysis Date: **2/27/2017 10:07 AM**
Client ID: Run ID: **LACHAT2_170227E** SeqNo: **4303951** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	1.053	0.005	0.020	1	0.06167	99.1	75-125	1.051	0.19	25	

The following samples were analyzed in this batch: 17021344-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206830B** Instrument ID **TOC3** Method: **A5310C-00**

MBLK Sample ID: **MBLK-R206830B** Units: **mg/L** Analysis Date: **2/27/2017 01:41 PM**
Client ID: Run ID: **TOC3_170227A** SeqNo: **4304845** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	0.039	0.039	0.50								JX

LCS Sample ID: **LCS-R206830B** Units: **mg/L** Analysis Date: **2/27/2017 01:41 PM**
Client ID: Run ID: **TOC3_170227A** SeqNo: **4304846** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	5.375	0.039	0.50	5	0	108	91-110	0			X

The following samples were analyzed in this batch: 17021344-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206832** Instrument ID **LACHAT2** Method: **E365.1 R2.0**

MBLK Sample ID: **MBLK-R206832** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304852** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	U	0.024	0.050								

LCS Sample ID: **LCS-R206832** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304853** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.008	0.024	0.050	1	0	101	90-110	0			

MS Sample ID: **17021400-01B MS** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304881** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.465	0.024	0.050	1	0.4744	99.1	90-110	0			

MS Sample ID: **17021229-02D MS** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304884** Prep Date: DF: **5**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	5.68	0.12	0.25	1	4.423	126	90-110	0			SO

MSD Sample ID: **17021400-01B MSD** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304882** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.518	0.024	0.050	1	0.4744	104	90-110	1.465	3.55	20	

MSD Sample ID: **17021229-02D MSD** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304885** Prep Date: DF: **5**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	5.785	0.12	0.25	1	4.423	136	90-110	5.68	1.83	20	SO

LCS2 Sample ID: **LCS2-R206832** Units: **mg/L** Analysis Date: **2/28/2017 12:14 PM**
Client ID: Run ID: **LACHAT2_170228A** SeqNo: **4304854** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	0.9221	0.024	0.050	1	0	92.2	90-110	0			

The following samples were analyzed in this batch: 17021344-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206875** Instrument ID **IC4** Method: **E300.0**

MBLK Sample ID: **CCB/MBLK-R206875** Units: **mg/L** Analysis Date: **2/28/2017 07:45 AM**
Client ID: Run ID: **IC4_170228A** SeqNo: **4306094** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.11	0.20								

LCS Sample ID: **LCS-R206875** Units: **mg/L** Analysis Date: **2/28/2017 08:06 AM**
Client ID: Run ID: **IC4_170228A** SeqNo: **4306095** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.041	0.11	0.20	2	0	102	90-110	0			

MS Sample ID: **17021159-01B MS** Units: **mg/L** Analysis Date: **2/28/2017 02:03 PM**
Client ID: Run ID: **IC4_170228A** SeqNo: **4306104** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	210.6	11	20	200	0	105	80-120	0			

MSD Sample ID: **17021159-01B MSD** Units: **mg/L** Analysis Date: **2/28/2017 02:23 PM**
Client ID: Run ID: **IC4_170228A** SeqNo: **4306105** Prep Date: DF: **100**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	212.8	11	20	200	0	106	80-120	210.6	1	20	

The following samples were analyzed in this batch: 17021344-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206897** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

MBLK Sample ID: **MBLK-R206897** Units: **mg/L** Analysis Date: **3/1/2017 11:25 AM**
Client ID: Run ID: **LACHAT2_170301C** SeqNo: **4306492** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	U	0.013	0.020								

LCS Sample ID: **LCS-R206897** Units: **mg/L** Analysis Date: **3/1/2017 11:25 AM**
Client ID: Run ID: **LACHAT2_170301C** SeqNo: **4306493** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	5.154	0.013	0.020	5	0	103	80-120	0			

MS Sample ID: **17021344-01D MS** Units: **mg/L** Analysis Date: **3/1/2017 11:25 AM**
Client ID: **Outfall 006** Run ID: **LACHAT2_170301C** SeqNo: **4306498** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	6.122	0.013	0.020	5	1.246	97.5	75-125	0			

MSD Sample ID: **17021344-01D MSD** Units: **mg/L** Analysis Date: **3/1/2017 11:25 AM**
Client ID: **Outfall 006** Run ID: **LACHAT2_170301C** SeqNo: **4306499** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	6.084	0.013	0.020	5	1.246	96.8	75-125	6.122	0.623	20	

The following samples were analyzed in this batch: 17021344-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 17021344
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206981** Instrument ID **WETCHEM** Method: **E410.4 R2.0**

MBLK Sample ID: **CCB/MBLK-R206981** Units: **mg/L** Analysis Date: **3/2/2017 10:54 AM**
Client ID: Run ID: **WETCHEM_170302G** SeqNo: **4308376** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	U	3	5.0								

LCS Sample ID: **CCV/LCS-R206981** Units: **mg/L** Analysis Date: **3/2/2017 10:54 AM**
Client ID: Run ID: **WETCHEM_170302G** SeqNo: **4308375** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	27.5	3	5.0	30	0	91.7	90-110	0			

MS Sample ID: **17021344-01A MS** Units: **mg/L** Analysis Date: **3/2/2017 10:54 AM**
Client ID: **Outfall 006** Run ID: **WETCHEM_170302G** SeqNo: **4308397** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	17.5	3	5.0	15	-6.84	162	90-110	0			S

MSD Sample ID: **17021344-01A MSD** Units: **mg/L** Analysis Date: **3/2/2017 10:54 AM**
Client ID: **Outfall 006** Run ID: **WETCHEM_170302G** SeqNo: **4308398** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	17.6	3	5.0	15	-6.84	163	90-110	17.5	0.57	20	S

The following samples were analyzed in this batch: 17021344-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

March 22, 2017

Ms. Rebecca Kiser
ALS Environmental
1740 Union Carbide Drive
Charleston, WV 25303

RE: Project: 17021344
Pace Project No.: 30212122

Dear Ms. Kiser:
Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 17021344
Pace Project No.: 30212122

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 17021344
Pace Project No.: 30212122

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30212122001	**17021344-01**	Water	02/22/17 10:00	03/01/17 10:10

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(724)850-5600

SAMPLE ANALYTE COUNT

Project: 17021344
Pace Project No.: 30212122

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30212122001	**17021344-01**	EPA 900.0	NEG	2
		EPA 903.1	WRR	1
		EPA 904.0	JJY	1
		ASTM D5811-95	LAL	1
		HSL-300	JC2	3

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(724)850-5600

PROJECT NARRATIVE

Project: 17021344
Pace Project No.: 30212122

Method: **EPA 900.0**
Description: 900.0 Gross Alpha/Beta
Client: ALS Life Sciences Division | Environmental
Date: March 22, 2017

General Information:
1 sample was analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 17021344
Pace Project No.: 30212122

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: ALS Life Sciences Division | Environmental
Date: March 22, 2017

General Information:
1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 17021344
Pace Project No.: 30212122

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: ALS Life Sciences Division | Environmental
Date: March 22, 2017

General Information:
1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 17021344
Pace Project No.: 30212122

Method: **ASTM D5811-95**
Description: ASTM D5811 Sr 89/90 Eichrom
Client: ALS Life Sciences Division | Environmental
Date: March 22, 2017

General Information:
1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 250862

N2: The lab does not hold NELAC/TNI accreditation for this parameter.

- 17021344-01 (Lab ID: 30212122001)
  - Strontium-90
- BLANK (Lab ID: 1234308)
  - Strontium-90

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(724)850-5600

PROJECT NARRATIVE

Project: 17021344
Pace Project No.: 30212122

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: ALS Life Sciences Division | Environmental
Date: March 22, 2017

General Information:
1 sample was analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 252257

N2: The lab does not hold NELAC/TNI accreditation for this parameter.

- 17021344-01 (Lab ID: 30212122001)
  - Thorium-228
  - Thorium-230
  - Thorium-232
- BLANK (Lab ID: 1241111)
  - Thorium-228
  - Thorium-230
  - Thorium-232

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 17021344
Pace Project No.: 30212122

Sample: 17021344-01 **Lab ID: 30212122001** Collected: 02/22/17 10:00 Received: 03/01/17 10:10 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**4.32 ± 2.07 (2.86) C:NA T:NA**	pCi/L	03/16/17 20:50	12587-46-1	
Gross Beta	EPA 900.0	**8.58 ± 2.11 (2.06) C:NA T:NA**	pCi/L	03/16/17 20:50	12587-47-2	
Radium-226	EPA 903.1	**-0.213 ± 0.325 (0.854) C:NA T:90%**	pCi/L	03/20/17 23:45	13982-63-3	
Radium-228	EPA 904.0	**-0.0429 ± 0.542 (1.27) C:48% T:82%**	pCi/L	03/20/17 16:22	15262-20-1	
Strontium-90	ASTM D5811-95	**-0.386 ± 0.911 (1.75) C:83% T:NA**	pCi/L	03/10/17 19:33	10098-97-2	N2
Thorium-228	HSL-300	**0.111 ± 0.281 (0.499) C:NA T:74%**	pCi/L	03/20/17 12:18	14274-82-9	N2
Thorium-230	HSL-300	**0.030 ± 0.120 (0.239) C:NA T:74%**	pCi/L	03/20/17 12:18	14269-63-7	N2
Thorium-232	HSL-300	**0.020 ± 0.091 (0.054) C:NA T:74%**	pCi/L	03/20/17 12:18	7440-29-1	N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
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QUALITY CONTROL - RADIOCHEMISTRY

Project: 17021344
Pace Project No.: 30212122

QC Batch: 252111 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30212122001

METHOD BLANK: 1240446 Matrix: Water
Associated Lab Samples: 30212122001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.129 ± 0.290 (0.644) C:87% T:85%	pCi/L	03/20/17 16:24	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 17021344
Pace Project No.: 30212122

QC Batch: 250862 Analysis Method: ASTM D5811-95
QC Batch Method: ASTM D5811-95 Analysis Description: ASTM D5811 Sr 89/90 Eichrom
Associated Lab Samples: 30212122001

METHOD BLANK: 1234308 Matrix: Water
Associated Lab Samples: 30212122001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	-0.354 ± 0.256 (0.683) C:101% T:NA	pCi/L	03/06/17 08:10	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 17021344
Pace Project No.: 30212122

QC Batch: 252257
QC Batch Method: HSL-300
Analysis Method: HSL-300
Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30212122001

METHOD BLANK: 1241111
Matrix: Water
Associated Lab Samples: 30212122001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-228	0.029 ± 0.092 (0.166) C:NA T:71%	pCi/L	03/20/17 12:18	N2
Thorium-230	-0.036 ± 0.047 (0.114) C:NA T:71%	pCi/L	03/20/17 12:18	N2
Thorium-232	0.000 ± 0.033 (0.020) C:NA T:71%	pCi/L	03/20/17 12:18	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 17021344
Pace Project No.: 30212122

QC Batch: 252110 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30212122001

METHOD BLANK: 1240444 Matrix: Water
Associated Lab Samples: 30212122001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.076 ± 0.348 (0.709) C:NA T:87%	pCi/L	03/20/17 23:26	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 17021344
Pace Project No.: 30212122

QC Batch: 252044
QC Batch Method: EPA 900.0
Analysis Method: EPA 900.0
Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30212122001

METHOD BLANK: 1240146
Matrix: Water
Associated Lab Samples: 30212122001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.171 ± 0.578 (1.45) C:NA T:NA	pCi/L	03/17/17 08:35	
Gross Beta	0.142 ± 0.633 (1.52) C:NA T:NA	pCi/L	03/17/17 08:35	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 17021344
Pace Project No.: 30212122

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter.

WO# : 30212122

30212122

☑ **ALS Environmental**
1740 Union Carbide Drive
South Charleston, WV 253
(Tel) 304.356.3168

☐ **ALS Environmental**
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	17021344	A	T. Alpha/Beta (900.0)
Work Order		Project Number		B	T. Radium 227 (904.0)
Company Name	ALS Environmental	Bill To Company		C	Radium 226 (903.1)
Send Report To	Rebecca Kiser	Invoice Attn.		D	Strontium-90 (IAChrom Sr)
Address	1740 Union Carbide Drive	Address		E	Uranium (ASTM D5174
				F	
City/State/Zip	South Charleston, WV 25303	City/State/Zip		G	
Phone	304-356-3168	Phone		H	
Fax	304-205-6262	Fax		I	
e-Mail Address	rebecca.kiser@alsglobal.com			J	

No.	Sample Description	Comp / Grab	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	17021344-01		2/22/17	10:00	W	2	6	X	X	X	X	X						
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

001

Sampler(s): Please Print & Sign	Shipment Method:	Required Turnaround Time: ☐ Other ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour	Results Due Date:

Relinquished by:	Date: 2/27/17	Time: 1700	Received by:	Temp:	Notes:
Relinquished by:	Date:	Time:	Received by: 3/1/17 1010		
Relinquished by:	Date:	Time:	Received by:	Temp:	QC Package: (Check Box Below)
Relinquished by:	Date:	Time:	Received by (Laboratory):		Level II: Standard QC
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		Level III: Standard QC + Raw Data Level IV: SW846 Methods/CLP
					Other:

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS

ARM

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: ALS Project # 30212122

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 778527042183

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used N/A **Type of Ice:** Wet Blue (None)

Cooler Temperature **Observed Temp** — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ARM 3/1/17

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:		✓		
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Organic Samples checked for dechlorination:			✓	13.
Filtered volume received for Dissolved tests			✓	14.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation.	✓			15. pH<2
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed ARM Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	16.
Trip Blank Present:			✓	17.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: ARM Date: 3/1/17

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

***PM review** is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Revision Date: 01/25/2017

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

17021344

<6°C ACSTC

SHADED AREA FOR ANALYTICAL LAB USE ONLY — EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST. Please Print Legibly — 2610 AUSTAD 322

Station:	Sample Description / ID:	Collection Date:
East Kentucky Power Cooperative **H.L. Spurlock Station** 1301 West Second Street Maysville, KY 41056	**Outfall 006**	2-22-17
	Matrix:	Collection Time:
	Water	1000
	Field pH (S.U.)	Temperature (°C)
	7.92	75 AM 24°C
Method of shipment (check one): CL ____ Inhouse ____ Contract ___	KPDES Permit #: KY0022250	

SAMPLE ANALYSIS REQUESTED:	Analysis Method:	Line Item #	Container Type	Container Volume (mL)	# of Containers	Preservative
Fecal Coliform (MF) ⊛	SM 9222, D-97	1	Plastic	100	1	$Na_2S_2O_3$
Color ⊛	SM 2120, B-11	2	Plastic	250	1	< 6°c
BOD ⊛	SM 5210, B-11	3	Plastic	1000	1	< 6°c
Chemical Oxygen Demand	EPA 410.4 R2.0	4	Amber Glass	120	1	H_2SO_4
Total Organic Carbon	SM 5310C	5	Amber Glass	120	1	H_2SO_4
Ammonia, Nitrogen	A4500-NH3 G-97	6	Plastic	250	1	H_2SO_4
Nitrate-Nitrite,	EPA 353.2 R2.0	7	Amber Glass	250	1	H_2SO_4
Total Organic Nitrogen	Calculation	8				
Bromide	EPA 300.0	9	Plastic	250	1	< 6°c
Total Phosphorus	EPA 365.1 R2.0	10	Amber Glass	120	1	H_2SO_4
Titanium, Total	EPA 200.8	11	Plastic	250	1	HNO_3
Cyanide, Total	EPA 335.4	12	Plastic	250	1	NaOH
Phenolics, Total	EPA 420.4	13	Amber Glass	250	1	H_2SO_4
Alpha, Total	EPA 900.0	14	Plastic	1000	1	HNO_3
Beta, Total	EPA 900.0	15	Plastic	1000	1	HNO_3
Radium, Total	EPA 904.0	16	Plastic	1000	1	HNO_3
Radium 226	EPA 903.1	17	Plastic	1000	1	HNO_3
Strontium-90	IAChrom Sr	18	Plastic	1000	1	HNO_3
Uranium	ASTM D5174	19	Plastic	1000	1	HNO_3
Volatiles***	EPA 624	20	Glass	40	3	HCl
Semi-Volatiles	EPA 625	21	Amber Glass	1000	2	< 6°c

	DATE	TIME	
Collected by: (Signature)	02/22/17	13:00	Received by: (Signature)
Relinquished by: (Signature)	02/22/17	14:25	Received by: (Signature)
Relinquished by: (Signature)	2/24/17	1115	Received by: (Signature)
Relinquished by: (Signature)	2/24/17	1423	Received by: (Signature)
Relinquished by: (Signature)	2/24/17	1700	Received by: (Signature) 2/25/17 1000

Notes/Comments: All invoices must be identified with the EKPC Purchase Order # 0000113572 and the associated Line Item Number.

*** = Trip Blank Included

⊛ (x3) Fecal, Color, BOD Samples not included in transfer on ~~02/24/2017~~ 2-24-17 JW. Samples sent elsewhere due to short hold times JW ~~2-24-17~~ 2-24-17 JW

ALS Group, USA

Sample Receipt Checklist

Client Name: **EKPC** Date/Time Received: **24-Feb-17 14:23**

Work Order: **17021344** Received by: **JAS**

Checklist completed by Janet Smith (eSignature) 24-Feb-17 (Date) Reviewed by: Rebecca Kiser (eSignature) 24-Feb-17 (Date)

Matrices: Water
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	<6C	IR	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:			
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: Holland <6 deg C

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

McCOY & McCOY LABORATORIES, Inc.

P.O. Box 907
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Farmersburg, IN 812.696.5076
Louisville, KY 502.961.0001
Paducah, KY 270.444.6547

"Providing Tomorrow's Analytical Capabilitiies Today"

Certificate of Analysis
7023413

Eric Hamilton
East Kentucky Power Cooperative
4775 Lexington Road
Winchester KY, 40391

Customer ID: EA2481
Report Printed: 02/28/2017 14:49

Project Name:	H. L. Spurlock Station	Workorder:	7023413

Dear Eric Hamilton

Enclosed are the analytical results for samples received at one of our laboratories on 02/22/2017 15:15.

McCoy & McCoy Laboratories, Inc. and Environmental Certification Labs are commercial laboratories accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our websites at www.mccoylabs.com or www.eclabs.org for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

This certificate of analysis may not be reproduced without the written consent of McCoy & McCoy

ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

PJLA Testing
Accreditation
#80812

ISO/IEC 17025:2005 ACCREDITED

Brett Davis

Brett Davis, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

McCOY & McCOY LABORATORIES, Inc.

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Louisville, KY 502.961.0001
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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
7023413-01	Outfall 006/	Water	02/22/2017 10:00	02/22/2017 15:15	Jeremy Hughes

ANALYTICAL RESULTS

Lab Sample ID: **7023413-01**
Description: **Outfall 006**

Sample Collection Date Time: 02/22/2017 10:00
Sample Received Date Time: 02/22/2017 15:15

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
ADMI Color at original pH	**8**		ADMI	1	1	2120 E-1997	02/23/2017 12:11	02/23/2017 15:46	TLB
ADMI Color at pH = 7.6	**9**		ADMI	1	1	2120 E-1997	02/23/2017 12:11	02/23/2017 15:56	TLB

Conventional Chemistry Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
BOD 5 Day	**9**	K1	mg/L	0		5210 B-2001	02/23/2017 08:14	02/28/2017 10:38	TLD1

Microbiological Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Fecal Coliforms	**19**		MPN/100mL	1		Colilert®-18 (Fecal Coliforms)	02/22/2017 16:52	02/23/2017 11:31	JLA

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Notes for work order 7023413

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.

K1	Concentration estimated. The sample dilutions set-up for the BOD or CBOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.

Standard Quallifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
<	Less than

Certified Analyses included in this Report

Analyte	Certifications
5210 B-2001 in Water	
BOD 5 Day	KY Wastewater Lex (00066)
Colilert®-18 (Fecal Coliforms) in Water	
Fecal Coliforms	KY Wastewater Lex (00066)

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Louisville, KY 502.961.0001
Paducah, KY 270.444.6547

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Sample Acceptance Checklist for Work Order 7023413

Shipped By: Client

Temperature: 4.70° Celcius

Condition	
Custody seals present/intact?	☐
Were any containers received damaged?	☐
COC submitted and complete?	☑
COC agree with sample labels?	☑
All containers listed on COC received?	☑
Were all samples in appropriate containers?	☑
Did all samples have appropriate volumes?	☑
Were collection methods recorded on COC?	☐
Were flow units recorded on COC?	☐
Any headspace issues with volatile samples?	☐
Were all holding times acceptable?	☑
Were preserved samples within acceptable pH range?	☐
Were preserved samples within acceptable Cl2 range	☐

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

SHADED AREA FOR ANALYICAL LAB USE ONLY EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST Please Print Legibly

Facility:	Sample Description / ID:	Collection Date:
East Kentucky Power Cooperative	**Outfall 006**	**2/22/2017**
H.L. Spurlock Station	Matrix:	Collection Time:
1301 West Second Street	Water	10:00
Maysville, KY 41056	Field pH (S.U.)	Temperature (°C)
	7.92	24°C
Method of shipment (check one);	KPDES Permit #:	
CL x Inhouse ____ Contract ___	KY0022250	

SAMPLE ANALYSIS REQUESTED:	Analysis Method:	Line Item #	Container Type	Container Volume (mL)	# of Containers	Preservative
Fecal Coliform (MF)	SM 9222, D-97	N/A	Plastic	100	1	$Na_2S_2O_3$
Color	SM 2120, B-11	N/A	Plastic	250	1	< 6°c
BOD	SM 5210, B-11	N/A	Plastic	1000	1	< 6°c

	DATE	TIME	
Collected by: (Signature) Jimmy Hughes (Spurlock CT3)	02/22/17	13:00	Received by: (Signature)
Relinquished by: (Signature) CLB 2/22/17 15:15	2-22-17	1515	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

Notes/Comments:
Send Results to
eric.hamilton@ekpc.coop

WO 7023413

EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, March 20, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	2/22/2017
Permit Number:	KY0022250	Sample Collection Time:	10:00:00 AM
Site ID:	**Outfall 006**	Sample Collected by:	JH
Extended Site ID:	**Stormwater Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	N/A	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.92	S.U.			SM 4500-H+, B-2000			2/22/2017	10:00 AM	JH
Flow	0.447	MGD			Calculated			2/22/2017	10:00 AM	JH

EKPC - Central Laboratory Analyses **Lab Identification #: 170193**

Sample Received Date:	2/22/2017	Sample Receipt Temperature (°C):	<6
Sample Received Time:	2:25:00 PM	Sample Received By:	JE

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Suspended Solids, Total	3.6	mg/L		2.5	SM 2550, D-1997			2/27/2017	1:01 PM	JE
Fluoride	0.88	mg/L	0.025	0.5	EPA 300.0 Rev 2.1 (1993)			3/17/2017	13:43	JE
Chloride	131.46	mg/L	0.13	0.5	EPA 300.0 Rev 2.1 (1993)			3/17/2017	14:10	JE
Sulfate	336.97	mg/L	0.29	5.0	EPA 300.0 Rev 2.1 (1993)			3/17/2017	14:10	JE
Metals, Total Recoverable										
Mercury	< 5	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	2/22/2017	2/27/2017	11:31 AM	JE
Antimony	< 1.0	µg/L	0.25	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Arsenic	2.9	µg/L	0.26	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Beryllium	0.1	µg/L	0.13	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Cadmium	0.8	µg/L	0.060	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Chromium	3.2	µg/L	0.16	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Copper	3.8	µg/L	0.21	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Lead	< 1.0	µg/L	0.30	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Nickel	9.8	µg/L	0.94	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Selenium	8.0	µg/L	0.45	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Silver	< 1.0	µg/L	0.21	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	3/2/2017	1:07 PM	JD
Thallium	0.7	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD
Zinc	50.4	µg/L	0.88	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/23/2017	2/23/2017	8:20 PM	JD

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
www.ekpc.coop

East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140011

Sample Date/Time: Wednesday, January 22, 2014 18:20:56
Sample Description:
Batch ID:
Autosampler Position: 21
Sample Prep Volume (mL):
Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌈	**Be**	9.01	**0.00**	ug/L	38.78	65	50
⌊>	**Sc**	44.96		ug/L		933969	870254
⌈	**Ag**	106.91	**0.06**	ug/L	1.29	1211	695
|>	**In**	114.90		ug/L		1165340	1551011
⌊	**Sb**	120.90	**0.65**	ug/L	2.75	6380	361
⌈	**Tl**	204.97	**0.02**	ug/L	3.82	990	410
|	**Pb**	207.98	**0.04**	ug/L	1.82	2155	859
⌊>	**Bi**	208.98		ug/L		766553	1079304
⌈	**Cr**	51.94	**0.28**	ug/L	11.67	186	36
⌊>	**In-1**	114.90		ug/L		27340	38193
⌈	**Zn**	65.93	**0.70**	ug/L	3.95	136	64
|	**As**	74.92	**1.36**	ug/L	7.79	73	3
|	**Se**	77.92	**0.92**	ug/L	22.49	7	4
|>	**Y**	88.91		ug/L		23881	29971
|	**Ni**	59.93	**1.14**	ug/L	4.72	680	30
|	**Cu**	62.93	**0.28**	ug/L	1.43	536	165
⌊	**Cd**	110.90	**0.02**	ug/L	92.34	9	7

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy Cooperative

Report Date: Wednesday, May 21, 2014

Certificate of Analysis

;ation:	H.L. Spurlock Station	Sample Collection Date:	4/4/2014
Permit Number:	**KY0022250**	Sample Collection Time:	12:10:00 PM
Site ID:	**Outfall 007**	Sample Collected by:	AR
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-06-30		

Field Analyses		Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH		7.81	S.U.			SM 4500-H+, B-2000			4/4/2014	12:10	AR
Flow		0.3200	MGD			Calculated			4/4/2014	12:10	AR

EKPC - Central Laboratory Analyses Lab Identification #: 140143

Sample Received Date:	4/7/2014	Sample Receipt Temperature (°C):	1.6
Sample Received Time:	11:35:00 AM	Sample Received By:	LR

Parameter		Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total		711	mg/L	0.02	1	SM 2340, B-1997			5/1/2014	17:02	EH
Dissolved Solids, Total		1094	mg/L		2.5	SM 2540, C-1997			4/11/2014	8:30	EH
Metals											
Low Level Mercury	<	5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/11/2014	4/28/2014	2:10 PM	EH
Antimony, Total	<	1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Arsenic, Total	<	1.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Beryllium, Total	<	1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Cadmium, Total	<	0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Chromium, Total	<	1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Copper, Total	<	1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Lead, Total	<	1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Nickel, Total		1.1	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Selenium, Total	<	1.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Silver, Total	<	1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Thallium, Total	<	0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Zinc, Total	<	10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:58	EH
Metals, Total	<	0.002	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	4/14/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	7:30:00 AM	Sample Received By:	JW

Parameter		Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	<	0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			4/16/2014	15:03	SRC
Phenolics, Total	<	0.05	mL/L	0.006	0.05	E420.4			4/16/2014	16:11	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by: Eric Hamilton, Chemist — Tim Yates, QA/QC Chemist

...that all of the information provided on this certificate is complete and accurate to the best of my knowledge and ability.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, August 05, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/10/2014
Permit Number:	KY0022250	Sample Collection Time:	12:44:00 PM
Site ID:	**Outfall 007**	Sample Collected by:	JH
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-09-30		

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.79	S.U.			SM 4500-H+, B-2000			7/10/2014	12:44	JH
Flow	0.2400	MGD			Calculated			7/10/2014	12:44	JH

EKPC - Central Laboratory Analyses **Lab Identification #: 140234**

Sample Received Date:	7/11/2014	Sample Receipt Temperature (°C):	2.2
Sample Received Time:	2:30:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	941	mg/L	0.02	1	SM 2340, B-1997			8/4/2014	20:01	EH
Dissolved Solids, Total	960	mg/L		2.5	SM 2540, C-1997			7/16/2014	10:35	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/11/2014	7/17/2014	2:03 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Arsenic, Total	1.1	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Nickel, Total	1.1	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Selenium, Total	1.1	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Thallium, Total	0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	17:14	JD/EH
Metals, Total	0.003	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	7/17/2014	Sample Receipt Temperature (°C):	3.6
Sample Received Time:	12:09:00 PM	Sample Received By:	KK

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			7/23/2014	10:45	SRC
Phenolics, Total	< 0.05	mL/L	0.006	0.05	E420.4			7/24/2014	14:26	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, October 30, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/7/2014
Permit Number:	KY0022250	Sample Collection Time:	8:48:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	AR
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.85	S.U.			SM 4500-H+, B-2000			10/7/2014	8:48 AM	AR
Flow	0.1900	MGD			Calculated			10/7/2014	8:48 AM	AR

EKPC - Central Laboratory Analyses **Lab Identification #: 140352**

Sample Received Date:	10/8/2014	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	1:02:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	651	mg/L	0.02	1	SM 2340, B-1997			10/29/2014	9:53 AM	EH
Dissolved Solids, Total	882	mg/L		2.5	SM 2540, C-1997			10/8/2014	2:50 PM	JD
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/8/2014	10/22/2014	1:04 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Arsenic, Total	< 1.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Nickel, Total	< 1.0	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Selenium, Total	< 1.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Thallium, Total	< 0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	12:08 PM	EH
Metals, Total	< 0.002	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	10/9/2014	Sample Receipt Temperature (°C):	2.2
Sample Received Time:	2:08:00 PM	Sample Received By:	KM

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			10/13/2014	11:00 AM	SRC
Phenolics, Total	< 0.050	mg/L	0.006	0.05	E420.4			10/16/2014	11:19 AM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

MLI # 014038635

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, February 02, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/8/2015
Permit Number:	KY0022250	Sample Collection Time:	12:32:00 PM
Site ID:	**Outfall 007**	Sample Collected by:	MW
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.86	S.U.			SM 4500-H+, B-2000			1/8/2015	12:32 PM	MW
Flow	0.1900	MGD			Calculated			1/8/2015	12:32 PM	MW

EKPC - Central Laboratory Analyses — **Lab Identification #: 150005**

Sample Received Date:	1/12/2015	Sample Receipt Temperature (°C):	1.0
Sample Received Time:	12:55:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	510	mg/L	0.02	1	SM 2340, B-1997			1/28/2015	11:39 AM	EH
Dissolved Solids, Total	956	mg/L		2.5	SM 2540, C-1997			1/14/2014	2:57 PM	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/0/1900	1/29/2015	1:06 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Arsenic, Total	1.2	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Nickel, Total	1.1	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Selenium, Total	< 1.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Thallium, Total	< 0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Metals, Total	0.002	mg/L	0.002							

Mineral Labs Inc Analyses — **Lab Identification #: 015002200**

Sample Received Date:	1/14/2015	Sample Receipt Temperature (°C):	2.6
Sample Received Time:	12:00:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			NDP	12:26 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			NDP	3:52 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, May 18, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/2/2015
Permit Number:	KY0022250	Sample Collection Time:	9:50:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	AR
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-06-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.85	S.U.			SM 4500-H+, B-2000			4/2/2015	9:50 AM	AR
Flow	0.0190	MGD			Calculated			4/2/2015	9:50 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150119**

Sample Received Date:	4/6/2015	Sample Receipt Temperature (°C):	0.4
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	960	mg/L		1	HACH 8226 Rev 7 (2012)			4/17/2015	9:15 AM	JD
Dissolved Solids, Total	1479	mg/L		2.5	SM 2540, C-1997			4/7/2015	1:12 PM	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/6/2015	4/9/2015	9:15 AM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Arsenic, Total	1.1	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Cadmium, Total	< 0.10	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Selenium, Total	1.4	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Thallium, Total	< 0.10	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Zinc, Total	< 1.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/29/2015	10:39 AM	EH
Metals, Total	########	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015015639**

Sample Received Date:	JL	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	3:20:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			4/10/2015	4:47 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			4/13/2015	3:21 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, September 01, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/1/2015
Permit Number:	KY0022250	Sample Collection Time:	12:27:00 PM
Site ID:	**Outfall 007**	Sample Collected by:	MW
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.85	S.U.			SM 4500-H+, B-2000			7/1/2015	12:27 PM	MW
Flow	0.0300	MGD			Calculated			7/1/2015	12:27 PM	MW

EKPC - Central Laboratory Analyses — **Lab Identification #: 150321**

Sample Received Date:	7/1/2015	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	1:40:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	648	mg/L		1	HACH 8226 Rev 7 (2012)			7/8/2015	5:07 PM	EH
Dissolved Solids, Total	1036	mg/L		2.5	SM 2540, C-1997			7/6/2015	4:07 PM	JD
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/6/2015	7/6/2015	7:58 AM	EH
Antimony, Total	1.2	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Arsenic, Total	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Selenium, Total	1.8	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Metals, Total	< 0.0192	mg/L	0.007	0.0192						

Mineral Labs Inc Analyses

Sample Received Date:	JL	Sample Receipt Temperature (°C):	0.4
Sample Received Time:	12:10:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			7/14/2015	9:47 AM	BWH
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			7/27/2015	4:36 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Contract Lab ID # 015030364

Approved by:

Chemist

QA/QC Chemist

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MINERAL LABS INC.

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Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S007-RO Reject**

Date/Time Collected: **7/01/2015 12:27:00**
Date/Time Received: **7/08/2015 12:10:00**
Lab Number: **015030364**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015030364 001					**Description: Package 1** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		7/01/15 12:27 CLT
Total Recoverable Phenolics	< 0.05	mg/L	0.010	0.05	EPA 420.4 Rev 1.0-1993	H2SO4	7/27/15 16:36 SRC
Cyanide	< 0.003	mg/L	0.002	0.003	EPA 335.4 Rev 1.0-1993	NaOH	7/14/15 9:47 BWH
Sample Received at	0.4	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15007227@@

Lab Id
015030364

EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, November 04, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/9/2015
Permit Number:	KY0022250	Sample Collection Time:	7:00:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	MWJ
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.92	S.U.			SM 4500-H+, B-2000			10/9/2015	7:00 AM	MWJ
Flow	0.0410	MGD			Calculated			10/9/2015	7:00 AM	MWJ

EKPC - Central Laboratory Analyses — **Lab Identification #: 150565**

Sample Received Date:	10/12/2015	Sample Receipt Temperature (°C):	3.1
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	867	mg/L	0.07	1	SM 2340, B-1997			10/22/2015	2:48 PM	EH
Dissolved Solids, Total	1402	mg/L		2.5	SM 2540, C-1997			10/12/2015	3:19 PM	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/12/2015	10/16/2015	9:18 AM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Arsenic, Total	15.2	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Nickel, Total	7.1	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Selenium, Total	1.3	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Zinc, Total	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Metals, Total	0.024	mg/L	0.007	0.019						

Mineral Labs Inc Analyses — **Lab Identification #: 015047459**

Sample Received Date:	10/16/2015	Sample Receipt Temperature (°C):	0.6
Sample Received Time:	2:00:00 PM	Sample Received By:	015047459

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			10/22/2015	5:48 PM	BWH
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			10/22/2015	3:00 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

Tel. (859) 744-4812
Fax: (859) 744-6008
www.ekpc.coop

MINERAL LABS INC.

Box 549
Salyersville, Kentucky 41465
Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S007-RO Reject**

Date/Time Collected: **10/09/2015 7:00:00**
Date/Time Received: **10/16/2015 14:00:00**
Lab Number: **015047459**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015047459 001					**Description: Package 1** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		10/09/15 7:00 CLT
Total Recoverable Phenolics	< 0.05	mg/L	0.010	0.05	EPA 420.4 Rev 1.0-1993	H2SO4	10/22/15 15:00 SRC
Cyanide	< 3.3	mg/L	0.002	0.003	EPA 335.4 Rev 1.0-1993	NaOH	10/22/15 17:48 BWH
Sample Received at	2.3	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15011010@@

Lab Id
015047459

17-Feb-2017

Eric Hamilton
East Kentucky Power Cooperative
4775 Lexington Road
Winchester, KY 40391

Re: **H.L. Spurlock Station** Work Order: **1702431**

Dear Eric,

ALS Environmental received 2 samples on 08-Feb-2017 through 09-Feb-2017 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 39.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Rebecca Kiser

Electronically approved by: Rebecca Kiser

Rebecca Kiser
Project Manager

Certificate No: KY: 98004

Report of Laboratory Analysis

ALS Group, USA

Date: 17-Feb-17

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Work Order: **1702431**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1702431-01	Outfall 007	Water		2/8/2017 09:09	2/8/2017 14:55	☐
1702431-01	Outfall 007	Water		2/8/2017 09:09	2/9/2017 10:00	☐
1702431-02	Trip Blank	Water		2/8/2017	2/9/2017 10:00	☐

Client:	East Kentucky Power Cooperative
Project:	H.L. Spurlock Station
Work Order:	1702431

Case Narrative

ALS Environmental
1740 Union Carbide Dr.
South Charleston, WV 25303
(304) 356-3168

The following parameters were received and analyzed for WO# 1702431 at the ALS South Charleston facility under WVDEP Attachment I, Certificate No. 385:

Oxygen Demand, Biochemical (BOD) - SM5210 B-11

QC Comments:

Batch R206078, Method VOC_624_WW, Sample VLCSW1-170215: The LCS recovery was above the upper control limit. The sample results for this batch may be biased high for this analyte: Tetrachloroethene

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
WorkOrder: 1702431

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
mg NH3-N/L	Milligrams Ammonia-Nitrogen per Liter
mg/L	Milligrams per Liter

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 007
Collection Date: 2/8/2017 09:09 AM

Work Order: 1702431
Lab ID: 1702431-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **E200.8**			Prep: E200.8 / 2/13/17		Analyst: **RH**
Titanium	**0.0028**	J	**0.00039**	**0.0050**	**mg/L**	1	2/14/2017 18:43
BIOCHEMICAL OXYGEN DEMAND		Method: **A5210B-11**			Prep: A5210B / 2/9/17		Analyst: **JAS**
Biochemical Oxygen Demand	**38**		**2.0**	**2.0**	**mg/L**	1	2/14/2017 13:46
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **E625**			Prep: SW3510 / 2/10/17		Analyst: **RM**
1,2,4-Trichlorobenzene	U		0.41	5.0	µg/L	1	2/14/2017 03:48
1,2-Dichlorobenzene	U		0.39	5.0	µg/L	1	2/14/2017 03:48
1,2-Diphenylhydrazine	U		0.14	5.0	µg/L	1	2/14/2017 03:48
1,3-Dichlorobenzene	U		0.65	5.0	µg/L	1	2/14/2017 03:48
1,4-Dichlorobenzene	U		0.32	5.0	µg/L	1	2/14/2017 03:48
2,4,6-Trichlorophenol	U		0.25	5.0	µg/L	1	2/14/2017 03:48
2,4-Dichlorophenol	U		0.35	5.0	µg/L	1	2/14/2017 03:48
2,4-Dimethylphenol	U		0.36	5.0	µg/L	1	2/14/2017 03:48
2,4-Dinitrophenol	U		0.40	5.0	µg/L	1	2/14/2017 03:48
2,4-Dinitrotoluene	U		0.42	5.0	µg/L	1	2/14/2017 03:48
2,6-Dinitrotoluene	U		0.11	5.0	µg/L	1	2/14/2017 03:48
2-Chloronaphthalene	U		0.075	5.0	µg/L	1	2/14/2017 03:48
2-Chlorophenol	U		0.23	5.0	µg/L	1	2/14/2017 03:48
2-Nitrophenol	U		0.34	5.0	µg/L	1	2/14/2017 03:48
3,3´-Dichlorobenzidine	U		1.6	5.0	µg/L	1	2/14/2017 03:48
4,6-Dinitro-2-methylphenol	U		0.27	5.0	µg/L	1	2/14/2017 03:48
4-Bromophenyl phenyl ether	U		0.33	5.0	µg/L	1	2/14/2017 03:48
4-Chloro-3-methylphenol	U		0.26	5.0	µg/L	1	2/14/2017 03:48
4-Chlorophenyl phenyl ether	U		0.31	5.0	µg/L	1	2/14/2017 03:48
4-Nitrophenol	U		0.24	5.0	µg/L	1	2/14/2017 03:48
Acenaphthene	U		0.081	5.0	µg/L	1	2/14/2017 03:48
Acenaphthylene	U		0.075	5.0	µg/L	1	2/14/2017 03:48
Anthracene	U		0.028	5.0	µg/L	1	2/14/2017 03:48
Benzidine	U		2.0	10	µg/L	1	2/14/2017 03:48
Benzo(a)anthracene	U		0.022	5.0	µg/L	1	2/14/2017 03:48
Benzo(a)pyrene	U		0.044	5.0	µg/L	1	2/14/2017 03:48
Benzo(b)fluoranthene	U		0.051	5.0	µg/L	1	2/14/2017 03:48
Benzo(g,h,i)perylene	U		0.030	5.0	µg/L	1	2/14/2017 03:48
Benzo(k)fluoranthene	U		0.048	5.0	µg/L	1	2/14/2017 03:48
Bis(2-chloroethoxy)methane	U		0.29	5.0	µg/L	1	2/14/2017 03:48
Bis(2-chloroisopropyl)ether	U		0.23	5.0	µg/L	1	2/14/2017 03:48
Bis(2-ethylhexyl)phthalate	U		0.40	5.0	µg/L	1	2/14/2017 03:48
Butyl benzyl phthalate	U		0.30	5.0	µg/L	1	2/14/2017 03:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 007
Collection Date: 2/8/2017 09:09 AM

Work Order: 1702431
Lab ID: 1702431-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Chrysene	U		0.048	5.0	µg/L	1	2/14/2017 03:48
Dibenzo(a,h)anthracene	U		0.030	5.0	µg/L	1	2/14/2017 03:48
Diethyl phthalate	U		0.17	5.0	µg/L	1	2/14/2017 03:48
Di-n-butyl phthalate	U		0.21	5.0	µg/L	1	2/14/2017 03:48
Di-n-octyl phthalate	U		0.15	5.0	µg/L	1	2/14/2017 03:48
Fluoranthene	U		0.038	5.0	µg/L	1	2/14/2017 03:48
Fluorene	U		0.051	5.0	µg/L	1	2/14/2017 03:48
Hexachlorobenzene	U		0.44	5.0	µg/L	1	2/14/2017 03:48
Hexachlorobutadiene	U		0.28	5.0	µg/L	1	2/14/2017 03:48
Hexachlorocyclopentadiene	U		1.1	5.0	µg/L	1	2/14/2017 03:48
Hexachloroethane	U		0.21	5.0	µg/L	1	2/14/2017 03:48
Indeno(1,2,3-cd)pyrene	U		0.067	5.0	µg/L	1	2/14/2017 03:48
Isophorone	U		0.34	5.0	µg/L	1	2/14/2017 03:48
Naphthalene	U		0.067	5.0	µg/L	1	2/14/2017 03:48
Nitrobenzene	U		0.26	5.0	µg/L	1	2/14/2017 03:48
N-Nitrosodimethylamine	U		0.48	5.0	µg/L	1	2/14/2017 03:48
N-Nitrosodi-n-propylamine	U		0.35	5.0	µg/L	1	2/14/2017 03:48
N-Nitrosodiphenylamine	U		0.23	5.0	µg/L	1	2/14/2017 03:48
Pentachlorophenol	U		0.97	5.0	µg/L	1	2/14/2017 03:48
Phenanthrene	U		0.030	5.0	µg/L	1	2/14/2017 03:48
Phenol	U		0.21	5.0	µg/L	1	2/14/2017 03:48
Pyrene	U		0.036	5.0	µg/L	1	2/14/2017 03:48
Surr: 2,4,6-Tribromophenol	*72.1*			*38-115*	*%REC*	1	2/14/2017 03:48
Surr: 2-Fluorobiphenyl	*62.3*			*32-100*	*%REC*	1	2/14/2017 03:48
Surr: 2-Fluorophenol	*32.1*			*22-59*	*%REC*	1	2/14/2017 03:48
Surr: 4-Terphenyl-d14	*89.2*			*23-112*	*%REC*	1	2/14/2017 03:48
Surr: Nitrobenzene-d5	*46.7*			*31-93*	*%REC*	1	2/14/2017 03:48
Surr: Phenol-d6	*18.6*			*13-36*	*%REC*	1	2/14/2017 03:48
VOLATILE ORGANIC COMPOUNDS		Method: **E624**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	2/15/2017 18:42
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	2/15/2017 18:42
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	2/15/2017 18:42
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	2/15/2017 18:42
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	2/15/2017 18:42
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	2/15/2017 18:42
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	2/15/2017 18:42
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	2/15/2017 18:42
Acrolein	U		2.5	10	µg/L	1	2/15/2017 18:42
Acrylonitrile	U		0.18	1.0	µg/L	1	2/15/2017 18:42

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 007
Collection Date: 2/8/2017 09:09 AM

Work Order: 1702431
Lab ID: 1702431-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Benzene	U		0.30	1.0	µg/L	1	2/15/2017 18:42
Bromodichloromethane	U		0.23	1.0	µg/L	1	2/15/2017 18:42
Bromoform	U		0.77	1.0	µg/L	1	2/15/2017 18:42
Bromomethane	U		0.38	1.0	µg/L	1	2/15/2017 18:42
Carbon tetrachloride	U		0.31	1.0	µg/L	1	2/15/2017 18:42
Chlorobenzene	U		0.27	1.0	µg/L	1	2/15/2017 18:42
Chloroethane	U		0.29	1.0	µg/L	1	2/15/2017 18:42
Chloroform	U		0.26	1.0	µg/L	1	2/15/2017 18:42
Chloromethane	U		0.17	1.0	µg/L	1	2/15/2017 18:42
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	2/15/2017 18:42
Dibromochloromethane	U		0.38	1.0	µg/L	1	2/15/2017 18:42
Ethylbenzene	U		0.40	1.0	µg/L	1	2/15/2017 18:42
Methylene chloride	U		0.56	5.0	µg/L	1	2/15/2017 18:42
Tetrachloroethene	U		0.27	1.0	µg/L	1	2/15/2017 18:42
Toluene	U		0.37	1.0	µg/L	1	2/15/2017 18:42
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	2/15/2017 18:42
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	2/15/2017 18:42
Vinyl chloride	U		0.20	1.0	µg/L	1	2/15/2017 18:42
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	2/15/2017 18:42
Surr: 1,2-Dichloroethane-d4	*97.2*			*75-120*	*%REC*	1	2/15/2017 18:42
Surr: 4-Bromofluorobenzene	*97.2*			*80-110*	*%REC*	1	2/15/2017 18:42
Surr: Dibromofluoromethane	*92.3*			*85-115*	*%REC*	1	2/15/2017 18:42
Surr: Toluene-d8	*98.0*			*85-110*	*%REC*	1	2/15/2017 18:42
CYANIDE, TOTAL		Method: **E335.4 R1.0**			Prep: SW9012B / 2/10/17		Analyst: **JB**
Cyanide, Total	U		0.0020	0.0050	mg/L	1	2/10/2017 12:15
CHEMICAL OXYGEN DEMAND		Method: **E410.4 R2.0**					Analyst: **JJG**
Chemical Oxygen Demand	**12**		**3.0**	**5.0**	**mg/L**	1	2/10/2017 12:50
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **ED**
Bromide	U		0.56	1.0	mg/L	5	2/14/2017 16:02
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	U		0.0050	0.020	mg NH3-N/L	1	2/9/2017 11:48
NITROGEN, NITRATE-NITRITE		Method: **E353.2 R2.0**					Analyst: **JJG**
Nitrogen, Nitrate-Nitrite	**1.1**		**0.013**	**0.020**	**mg/L**	1	2/14/2017 12:58
NITROGEN, TOTAL ORGANIC		Method: **CALCULATION**					Analyst: **JB**
Nitrogen, Total Organic	*<1*		1.0	1.0	mg/L	1	2/13/2017 12:15
PHOSPHORUS, TOTAL		Method: **E365.1 R2.0**					Analyst: **JJG**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 007
Collection Date: 2/8/2017 09:09 AM

Work Order: 1702431
Lab ID: 1702431-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Phosphorus, Total	**0.37**		**0.024**	**0.050**	**mg/L**	1	2/10/2017 08:36
PHENOLICS, TOTAL		Method: **E420.4**			Prep: E420.x / 2/13/17		Analyst: **JB**
Phenolics, Total	**0.41**		**0.010**	**0.050**	**mg/L**	5	2/15/2017 13:46
NITROGEN, TOTAL KJELDAHL		Method: **A4500-NH3 G-97**			Prep: A4500-N B / 2/9/17		Analyst: **JB**
Nitrogen, Total Kjeldahl	U		0.48	1.0	mg/L	1	2/13/2017 10:52
ORGANIC CARBON, TOTAL		Method: **A5310C-00**					Analyst: **JJG**
Organic Carbon, Total	**3.4**		**0.039**	**0.50**	**mg/L**	1	2/10/2017 13:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Trip Blank
Collection Date: 2/8/2017

Work Order: 1702431
Lab ID: 1702431-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	2/10/2017 17:19
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	2/10/2017 17:19
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	2/10/2017 17:19
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	2/10/2017 17:19
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	2/10/2017 17:19
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	2/10/2017 17:19
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	2/10/2017 17:19
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	2/10/2017 17:19
Acrolein	U		2.5	10	µg/L	1	2/10/2017 17:19
Acrylonitrile	U		0.18	1.0	µg/L	1	2/10/2017 17:19
Benzene	U		0.30	1.0	µg/L	1	2/10/2017 17:19
Bromodichloromethane	U		0.23	1.0	µg/L	1	2/10/2017 17:19
Bromoform	U		0.77	1.0	µg/L	1	2/10/2017 17:19
Bromomethane	U		0.38	1.0	µg/L	1	2/10/2017 17:19
Carbon tetrachloride	U		0.31	1.0	µg/L	1	2/10/2017 17:19
Chlorobenzene	U		0.27	1.0	µg/L	1	2/10/2017 17:19
Chloroethane	U		0.29	1.0	µg/L	1	2/10/2017 17:19
Chloroform	U		0.26	1.0	µg/L	1	2/10/2017 17:19
Chloromethane	U		0.17	1.0	µg/L	1	2/10/2017 17:19
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	2/10/2017 17:19
Dibromochloromethane	U		0.38	1.0	µg/L	1	2/10/2017 17:19
Ethylbenzene	U		0.40	1.0	µg/L	1	2/10/2017 17:19
Methylene chloride	U		0.56	5.0	µg/L	1	2/10/2017 17:19
Tetrachloroethene	U		0.27	1.0	µg/L	1	2/10/2017 17:19
Toluene	U		0.37	1.0	µg/L	1	2/10/2017 17:19
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	2/10/2017 17:19
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	2/10/2017 17:19
Vinyl chloride	U		0.20	1.0	µg/L	1	2/10/2017 17:19
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	2/10/2017 17:19
Surr: 1,2-Dichloroethane-d4	*101*			*75-120*	*%REC*	1	2/10/2017 17:19
Surr: 4-Bromofluorobenzene	*93.7*			*80-110*	*%REC*	1	2/10/2017 17:19
Surr: Dibromofluoromethane	*98.8*			*85-115*	*%REC*	1	2/10/2017 17:19
Surr: Toluene-d8	*96.6*			*85-110*	*%REC*	1	2/10/2017 17:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Feb-17

Client: East Kentucky Power Cooperative

Work Order: 1702431

Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98121** Instrument ID **ICPMS2** Method: **E200.8**

MBLK Sample ID: **MBLK-98121-98121** Units: **mg/L** Analysis Date: **2/14/2017 06:01 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286975** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	U	0.00039	0.0050								

LCS Sample ID: **LCS-98121-98121** Units: **mg/L** Analysis Date: **2/14/2017 06:06 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286976** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1002	0.00039	0.0050	0.1	0	100	85-115	0			

MS Sample ID: **1702400-01KMS** Units: **mg/L** Analysis Date: **2/14/2017 06:16 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286978** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1065	0.00039	0.0050	0.1	0.005593	101	70-130	0			

MS Sample ID: **1702474-04AMS** Units: **mg/L** Analysis Date: **2/14/2017 08:54 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287007** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1016	0.00039	0.0050	0.1	0.0001534	101	70-130	0			

MSD Sample ID: **1702400-01KMSD** Units: **mg/L** Analysis Date: **2/14/2017 06:37 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286982** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1077	0.00039	0.0050	0.1	0.005593	102	70-130	0.1065	1.12	20	

MSD Sample ID: **1702474-04AMSD** Units: **mg/L** Analysis Date: **2/14/2017 08:59 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287008** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1008	0.00039	0.0050	0.1	0.0001534	101	70-130	0.1016	0.791	20	

The following samples were analyzed in this batch: 1702431-01H

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98043** Instrument ID **WETCHEM** Method: **A5210B-11**

MBLK Sample ID: **MBLK-98043-98043** Units: **mg/L** Analysis Date: **2/14/2017 01:46 PM**
Client ID: Run ID: **WETCHEM_170214Q** SeqNo: **4286937** Prep Date: **2/9/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	U	2	2.0								

LCS Sample ID: **LCS-98043-98043** Units: **mg/L** Analysis Date: **2/14/2017 01:46 PM**
Client ID: Run ID: **WETCHEM_170214Q** SeqNo: **4286938** Prep Date: **2/9/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	201.7	2	2.0	198	0	102	80-113	0			

DUP Sample ID: **1702400-04A DUP** Units: **mg/L** Analysis Date: **2/14/2017 01:46 PM**
Client ID: Run ID: **WETCHEM_170214Q** SeqNo: **4286941** Prep Date: **2/9/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	246.7	2	2.0	0	0	0	0-0	219.5	11.7	20	

The following samples were analyzed in this batch: 1702431-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

MBLK Sample ID: **SBLKW1-98061-98061** Units: **µg/L** Analysis Date: **2/10/2017 04:08 PM**
Client ID: Run ID: **SVMS5_170210A** SeqNo: **4284112** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	0.41	5.0								
1,2-Dichlorobenzene	U	0.39	5.0								
1,2-Diphenylhydrazine	U	0.14	5.0								
1,3-Dichlorobenzene	U	0.65	5.0								
1,4-Dichlorobenzene	U	0.32	5.0								
2,4,6-Trichlorophenol	U	0.25	5.0								
2,4-Dichlorophenol	U	0.35	5.0								
2,4-Dimethylphenol	U	0.36	5.0								
2,4-Dinitrophenol	U	0.4	5.0								
2,4-Dinitrotoluene	U	0.42	5.0								
2,6-Dinitrotoluene	U	0.11	5.0								
2-Chloronaphthalene	U	0.075	5.0								
2-Chlorophenol	U	0.23	5.0								
2-Nitrophenol	U	0.34	5.0								
3,3´-Dichlorobenzidine	U	1.6	5.0								
4,6-Dinitro-2-methylphenol	U	0.27	5.0								
4-Bromophenyl phenyl ether	U	0.33	5.0								
4-Chloro-3-methylphenol	U	0.26	5.0								
4-Chlorophenyl phenyl ether	U	0.31	5.0								
4-Nitrophenol	U	0.24	5.0								
Acenaphthene	U	0.081	5.0								
Acenaphthylene	U	0.075	5.0								
Anthracene	U	0.028	5.0								
Benzidine	U	2	10								
Benzo(a)anthracene	U	0.022	5.0								
Benzo(a)pyrene	U	0.044	5.0								
Benzo(b)fluoranthene	U	0.051	5.0								
Benzo(g,h,i)perylene	U	0.03	5.0								
Benzo(k)fluoranthene	U	0.048	5.0								
Bis(2-chloroethoxy)methane	U	0.29	5.0								
Bis(2-chloroisopropyl)ether	U	0.23	5.0								
Bis(2-ethylhexyl)phthalate	U	0.4	5.0								
Butyl benzyl phthalate	U	0.3	5.0								
Chrysene	U	0.048	5.0								
Dibenzo(a,h)anthracene	U	0.03	5.0								
Diethyl phthalate	U	0.17	5.0								
Di-n-butyl phthalate	U	0.21	5.0								
Di-n-octyl phthalate	U	0.15	5.0								
Fluoranthene	U	0.038	5.0								
Fluorene	U	0.051	5.0								
Hexachlorobenzene	U	0.44	5.0								
Hexachlorobutadiene	U	0.28	5.0								
Hexachlorocyclopentadiene	U	1.1	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

Hexachloroethane	U	0.21	5.0					
Indeno(1,2,3-cd)pyrene	U	0.067	5.0					
Isophorone	U	0.34	5.0					
Naphthalene	U	0.067	5.0					
Nitrobenzene	U	0.26	5.0					
N-Nitrosodimethylamine	U	0.48	5.0					
N-Nitrosodi-n-propylamine	U	0.35	5.0					
N-Nitrosodiphenylamine	U	0.23	5.0					
Pentachlorophenol	U	0.97	5.0					
Phenanthrene	U	0.03	5.0					
Phenol	U	0.21	5.0					
Pyrene	U	0.036	5.0					
Surr: 2,4,6-Tribromophenol	*30.74*	0	0	*50*	0	*61.5*	*38-115*	0
Surr: 2-Fluorobiphenyl	*31.14*	0	0	*50*	0	*62.3*	*32-100*	0
Surr: 2-Fluorophenol	*19.07*	0	0	*50*	0	*38.1*	*22-59*	0
Surr: 4-Terphenyl-d14	*37.57*	0	0	*50*	0	*75.1*	*23-112*	0
Surr: Nitrobenzene-d5	*32.57*	0	0	*50*	0	*65.1*	*31-93*	0
Surr: Phenol-d6	*11.82*	0	0	*50*	0	*23.6*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

LCS Sample ID: **SLCSW1-98061-98061** Units: **µg/L** Analysis Date: **2/10/2017 04:31 PM**
Client ID: Run ID: **SVMS5_170210A** SeqNo: **4284113** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	13.64	0.41	5.0	20	0	68.2	35-105	0			
1,2-Dichlorobenzene	13.59	0.39	5.0	20	0	68	35-100	0			
1,2-Diphenylhydrazine	16.67	0.14	5.0	20	0	83.4	55-115	0			
1,3-Dichlorobenzene	13.52	0.65	5.0	20	0	67.6	30-100	0			
1,4-Dichlorobenzene	13.64	0.32	5.0	20	0	68.2	30-100	0			
2,4,6-Trichlorophenol	15.4	0.25	5.0	20	0	77	50-115	0			
2,4-Dichlorophenol	14.25	0.35	5.0	20	0	71.2	50-105	0			
2,4-Dimethylphenol	11.94	0.36	5.0	20	0	59.7	30-110	0			
2,4-Dinitrophenol	15.93	0.4	5.0	20	0	79.6	15-140	0			
2,4-Dinitrotoluene	15.39	0.42	5.0	20	0	77	50-120	0			
2,6-Dinitrotoluene	15.39	0.11	5.0	20	0	77	50-115	0			
2-Chloronaphthalene	14.89	0.075	5.0	20	0	74.4	50-105	0			
2-Chlorophenol	14.55	0.23	5.0	20	0	72.8	35-105	0			
2-Nitrophenol	14.63	0.34	5.0	20	0	73.2	40-115	0			
3,3'-Dichlorobenzidine	16.37	1.6	5.0	20	0	81.8	30-120	0			
4,6-Dinitro-2-methylphenol	15.33	0.27	5.0	20	0	76.6	40-130	0			
4-Bromophenyl phenyl ether	16.86	0.33	5.0	20	0	84.3	50-115	0			
4-Chloro-3-methylphenol	13.6	0.26	5.0	20	0	68	45-110	0			
4-Chlorophenyl phenyl ether	15.07	0.31	5.0	20	0	75.4	50-110	0			
4-Nitrophenol	6.87	0.24	5.0	20	0	34.4	10-58	0			
Acenaphthene	14.73	0.081	5.0	20	0	73.6	45-110	0			
Acenaphthylene	15.82	0.075	5.0	20	0	79.1	50-105	0			
Anthracene	17.06	0.028	5.0	20	0	85.3	55-110	0			
Benzo(a)anthracene	17.1	0.022	5.0	20	0	85.5	55-110	0			
Benzo(a)pyrene	18.35	0.044	5.0	20	0	91.8	55-110	0			
Benzo(b)fluoranthene	16.33	0.051	5.0	20	0	81.6	45-120	0			
Benzo(g,h,i)perylene	19.98	0.03	5.0	20	0	99.9	40-125	0			
Benzo(k)fluoranthene	16.11	0.048	5.0	20	0	80.6	45-125	0			
Bis(2-chloroethoxy)methane	14.45	0.29	5.0	20	0	72.2	45-105	0			
Bis(2-ethylhexyl)phthalate	19.59	0.4	5.0	20	0	98	40-125	0			
Butyl benzyl phthalate	16.64	0.3	5.0	20	0	83.2	45-115	0			
Chrysene	17.35	0.048	5.0	20	0	86.8	55-110	0			
Dibenzo(a,h)anthracene	20.28	0.03	5.0	20	0	101	40-125	0			
Diethyl phthalate	15.7	0.17	5.0	20	0	78.5	40-120	0			
Di-n-butyl phthalate	19.09	0.21	5.0	20	0	95.4	55-115	0			
Di-n-octyl phthalate	22.21	0.15	5.0	20	0	111	35-135	0			
Fluoranthene	16.43	0.038	5.0	20	0	82.2	55-115	0			
Fluorene	14.88	0.051	5.0	20	0	74.4	50-110	0			
Hexachlorobenzene	15.56	0.44	5.0	20	0	77.8	50-110	0			
Hexachlorobutadiene	13.09	0.28	5.0	20	0	65.4	25-105	0			
Hexachlorocyclopentadiene	13.14	1.1	5.0	20	0	65.7	25-105	0			
Hexachloroethane	12.93	0.21	5.0	20	0	64.6	30-95	0			
Indeno(1,2,3-cd)pyrene	20.9	0.067	5.0	20	0	104	45-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

Isophorone	14.36	0.34	5.0	20	0	71.8	50-110	0
Naphthalene	14.81	0.067	5.0	20	0	74	40-100	0
Nitrobenzene	14.62	0.26	5.0	20	0	73.1	45-110	0
N-Nitrosodimethylamine	8.06	0.48	5.0	20	0	40.3	25-110	0
N-Nitrosodi-n-propylamine	14	0.35	5.0	20	0	70	35-130	0
N-Nitrosodiphenylamine	17.32	0.23	5.0	20	0	86.6	50-110	0
Pentachlorophenol	12.59	0.97	5.0	20	0	63	40-115	0
Phenanthrene	17.27	0.03	5.0	20	0	86.4	50-115	0
Phenol	7.28	0.21	5.0	20	0	36.4	12-43	0
Pyrene	17.77	0.036	5.0	20	0	88.8	50-130	0
Surr: 2,4,6-Tribromophenol	*35.41*	0	0	*50*	0	*70.8*	*38-115*	0
Surr: 2-Fluorobiphenyl	*33.27*	0	0	*50*	0	*66.5*	*32-100*	0
Surr: 2-Fluorophenol	*20.01*	0	0	*50*	0	*40*	*22-59*	0
Surr: 4-Terphenyl-d14	*37.82*	0	0	*50*	0	*75.6*	*23-112*	0
Surr: Nitrobenzene-d5	*35.06*	0	0	*50*	0	*70.1*	*31-93*	0
Surr: Phenol-d6	*12.39*	0	0	*50*	0	*24.8*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

MS Sample ID: **1702382-01A MS** Units: **µg/L** Analysis Date: **2/10/2017 07:48 PM**

Client ID: Run ID: **SVMS5_170210A** SeqNo: **4284114** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	217.2	8.2	100	400	0	54.3	35-105	0			
1,2-Dichlorobenzene	195	7.8	100	400	0	48.8	35-100	0			
1,2-Diphenylhydrazine	313.2	2.8	100	400	0	78.3	55-115	0			
1,3-Dichlorobenzene	196.4	13	100	400	0	49.1	30-100	0			
1,4-Dichlorobenzene	196.4	6.4	100	400	0	49.1	30-100	0			
2,4,6-Trichlorophenol	314	5	100	400	0	78.5	50-115	0			
2,4-Dichlorophenol	262.2	7	100	400	0	65.6	50-105	0			
2,4-Dimethylphenol	256.8	7.2	100	400	0	64.2	30-110	0			
2,4-Dinitrophenol	390.6	8	100	400	0	97.6	15-140	0			
2,4-Dinitrotoluene	290	8.4	100	400	0	72.5	50-120	0			
2,6-Dinitrotoluene	290	2.2	100	400	0	72.5	50-115	0			
2-Chloronaphthalene	262	1.5	100	400	0	65.5	50-105	0			
2-Chlorophenol	216.6	4.6	100	400	0	54.2	35-105	0			
2-Nitrophenol	222	6.8	100	400	0	55.5	40-115	0			
3,3'-Dichlorobenzidine	181.8	32	100	400	0	45.4	30-120	0			
4,6-Dinitro-2-methylphenol	310.8	5.4	100	400	0	77.7	40-130	0			
4-Bromophenyl phenyl ether	328.4	6.6	100	400	0	82.1	50-115	0			
4-Chloro-3-methylphenol	281	5.2	100	400	0	70.2	45-110	0			
4-Chlorophenyl phenyl ether	286	6.2	100	400	0	71.5	50-110	0			
4-Nitrophenol	182.6	4.8	100	400	0	45.6	10-58	0			
Acenaphthene	269.2	1.6	100	400	0	67.3	45-110	0			
Acenaphthylene	284.4	1.5	100	400	0	71.1	50-105	0			
Anthracene	336	0.56	100	400	0	84	55-110	0			
Benzo(a)anthracene	333.8	0.44	100	400	0	83.4	55-110	0			
Benzo(a)pyrene	355	0.88	100	400	0	88.8	55-110	0			
Benzo(b)fluoranthene	316.2	1	100	400	0	79	45-120	0			
Benzo(g,h,i)perylene	367.4	0.6	100	400	0	91.8	40-125	0			
Benzo(k)fluoranthene	309	0.96	100	400	0	77.2	45-125	0			
Bis(2-chloroethoxy)methane	215.8	5.8	100	400	0	54	45-105	0			
Bis(2-ethylhexyl)phthalate	394.8	8	100	400	57.2	84.4	40-125	0			
Butyl benzyl phthalate	323.2	6	100	400	0	80.8	45-115	0			
Chrysene	342	0.96	100	400	0	85.5	55-110	0			
Dibenzo(a,h)anthracene	372.8	0.6	100	400	0	93.2	40-125	0			
Diethyl phthalate	299	3.4	100	400	0	74.8	40-120	0			
Di-n-butyl phthalate	366.4	4.2	100	400	7.2	89.8	55-115	0			
Di-n-octyl phthalate	424.6	3	100	400	0	106	35-135	0			
Fluoranthene	329.6	0.76	100	400	0	82.4	55-115	0			
Fluorene	284.2	1	100	400	0	71	50-110	0			
Hexachlorobenzene	300.8	8.8	100	400	0	75.2	50-110	0			
Hexachlorobutadiene	208.2	5.6	100	400	0	52	25-105	0			
Hexachlorocyclopentadiene	201.8	22	100	400	0	50.4	25-105	0			
Hexachloroethane	185	4.2	100	400	0	46.2	30-95	0			
Indeno(1,2,3-cd)pyrene	384	1.3	100	400	0	96	45-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

Isophorone	225.4	6.8	100	400	0	56.4	50-110	0
Naphthalene	295.2	1.3	100	400	0	73.8	40-100	0
Nitrobenzene	212.2	5.2	100	400	0	53	45-110	0
N-Nitrosodimethylamine	119.8	9.6	100	400	0	30	25-110	0
N-Nitrosodi-n-propylamine	226.6	7	100	400	0	56.6	35-130	0
N-Nitrosodiphenylamine	339.4	4.6	100	400	0	84.8	50-110	0
Pentachlorophenol	385.4	19	100	400	0	96.4	40-115	0
Phenanthrene	336	0.6	100	400	0	84	50-115	0
Phenol	114.6	4.2	100	400	0	28.6	12-43	0
Pyrene	350.4	0.72	100	400	0	87.6	50-130	0
Surr: 2,4,6-Tribromophenol	*739.6*	0	0	*1000*	0	*74*	*38-115*	0
Surr: 2-Fluorobiphenyl	*594*	0	0	*1000*	0	*59.4*	*32-100*	0
Surr: 2-Fluorophenol	*275.8*	0	0	*1000*	0	*27.6*	*22-59*	0
Surr: 4-Terphenyl-d14	*714*	0	0	*1000*	0	*71.4*	*23-112*	0
Surr: Nitrobenzene-d5	*510.8*	0	0	*1000*	0	*51.1*	*31-93*	0
Surr: Phenol-d6	*198.8*	0	0	*1000*	0	*19.9*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

MSD Sample ID: **1702382-01A MSD** Units: **µg/L** Analysis Date: **2/10/2017 08:11 PM**
Client ID: Run ID: **SVMS5_170210A** SeqNo: **4284115** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	219.2	8.2	100	400	0	54.8	35-105	217.2	0.917	30	
1,2-Dichlorobenzene	212.6	7.8	100	400	0	53.2	35-100	195	8.64	30	
1,2-Diphenylhydrazine	308.4	2.8	100	400	0	77.1	55-115	313.2	1.54	30	
1,3-Dichlorobenzene	211.8	13	100	400	0	53	30-100	196.4	7.55	30	
1,4-Dichlorobenzene	214	6.4	100	400	0	53.5	30-100	196.4	8.58	30	
2,4,6-Trichlorophenol	304.6	5	100	400	0	76.2	50-115	314	3.04	30	
2,4-Dichlorophenol	255	7	100	400	0	63.8	50-105	262.2	2.78	30	
2,4-Dimethylphenol	244.2	7.2	100	400	0	61	30-110	256.8	5.03	30	
2,4-Dinitrophenol	396	8	100	400	0	99	15-140	390.6	1.37	30	
2,4-Dinitrotoluene	280	8.4	100	400	0	70	50-120	290	3.51	30	
2,6-Dinitrotoluene	280	2.2	100	400	0	70	50-115	290	3.51	30	
2-Chloronaphthalene	241.4	1.5	100	400	0	60.4	50-105	262	8.18	30	
2-Chlorophenol	217.6	4.6	100	400	0	54.4	35-105	216.6	0.461	30	
2-Nitrophenol	219.6	6.8	100	400	0	54.9	40-115	222	1.09	30	
3,3´-Dichlorobenzidine	174.2	32	100	400	0	43.6	30-120	181.8	4.27	30	
4,6-Dinitro-2-methylphenol	302.8	5.4	100	400	0	75.7	40-130	310.8	2.61	30	
4-Bromophenyl phenyl ether	319.6	6.6	100	400	0	79.9	50-115	328.4	2.72	30	
4-Chloro-3-methylphenol	278.6	5.2	100	400	0	69.6	45-110	281	0.858	30	
4-Chlorophenyl phenyl ether	275.4	6.2	100	400	0	68.8	50-110	286	3.78	30	
4-Nitrophenol	188.4	4.8	100	400	0	47.1	10-58	182.6	3.13	30	
Acenaphthene	255.4	1.6	100	400	0	63.8	45-110	269.2	5.26	30	
Acenaphthylene	270.8	1.5	100	400	0	67.7	50-105	284.4	4.9	30	
Anthracene	326.4	0.56	100	400	0	81.6	55-110	336	2.9	30	
Benzo(a)anthracene	329.2	0.44	100	400	0	82.3	55-110	333.8	1.39	30	
Benzo(a)pyrene	348	0.88	100	400	0	87	55-110	355	1.99	30	
Benzo(b)fluoranthene	317.4	1	100	400	0	79.4	45-120	316.2	0.379	30	
Benzo(g,h,i)perylene	359.4	0.6	100	400	0	89.8	40-125	367.4	2.2	30	
Benzo(k)fluoranthene	302.2	0.96	100	400	0	75.6	45-125	309	2.23	30	
Bis(2-chloroethoxy)methane	209.6	5.8	100	400	0	52.4	45-105	215.8	2.91	30	
Bis(2-ethylhexyl)phthalate	390.8	8	100	400	57.2	83.4	40-125	394.8	1.02	30	
Butyl benzyl phthalate	324.2	6	100	400	0	81	45-115	323.2	0.309	30	
Chrysene	337.2	0.96	100	400	0	84.3	55-110	342	1.41	30	
Dibenzo(a,h)anthracene	367.2	0.6	100	400	0	91.8	40-125	372.8	1.51	30	
Diethyl phthalate	290	3.4	100	400	0	72.5	40-120	299	3.06	30	
Di-n-butyl phthalate	363.4	4.2	100	400	7.2	89	55-115	366.4	0.822	30	
Di-n-octyl phthalate	426	3	100	400	0	106	35-135	424.6	0.329	30	
Fluoranthene	326.4	0.76	100	400	0	81.6	55-115	329.6	0.976	30	
Fluorene	278	1	100	400	0	69.5	50-110	284.2	2.21	30	
Hexachlorobenzene	292.8	8.8	100	400	0	73.2	50-110	300.8	2.7	30	
Hexachlorobutadiene	222.8	5.6	100	400	0	55.7	25-105	208.2	6.77	30	
Hexachlorocyclopentadiene	183.6	22	100	400	0	45.9	25-105	201.8	9.44	30	
Hexachloroethane	202.6	4.2	100	400	0	50.6	30-95	185	9.08	30	
Indeno(1,2,3-cd)pyrene	382.6	1.3	100	400	0	95.6	45-125	384	0.365	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **98061** Instrument ID **SVMS5** Method: **E625**

Isophorone	213.4	6.8	100	400	0	53.4	50-110	225.4	5.47	30
Naphthalene	297.2	1.3	100	400	0	74.3	40-100	295.2	0.675	30
Nitrobenzene	213.2	5.2	100	400	0	53.3	45-110	212.2	0.47	30
N-Nitrosodimethylamine	137.2	9.6	100	400	0	34.3	25-110	119.8	13.5	30
N-Nitrosodi-n-propylamine	228.2	7	100	400	0	57	35-130	226.6	0.704	30
N-Nitrosodiphenylamine	325.8	4.6	100	400	0	81.4	50-110	339.4	4.09	30
Pentachlorophenol	378	19	100	400	0	94.5	40-115	385.4	1.94	30
Phenanthrene	332.2	0.6	100	400	0	83	50-115	336	1.14	30
Phenol	117.8	4.2	100	400	0	29.4	12-43	114.6	2.75	30
Pyrene	348	0.72	100	400	0	87	50-130	350.4	0.687	30
Surr: 2,4,6-Tribromophenol	*728.8*	0	0	*1000*	0	*72.9*	*38-115*	739.6	*1.47*	*40*
Surr: 2-Fluorobiphenyl	*543.2*	0	0	*1000*	0	*54.3*	*32-100*	594	*8.93*	*40*
Surr: 2-Fluorophenol	*288.2*	0	0	*1000*	0	*28.8*	*22-59*	275.8	*4.4*	*40*
Surr: 4-Terphenyl-d14	*727.6*	0	0	*1000*	0	*72.8*	*23-112*	714	*1.89*	*40*
Surr: Nitrobenzene-d5	*511.4*	0	0	*1000*	0	*51.1*	*31-93*	510.8	*0.117*	*40*
Surr: Phenol-d6	*208.2*	0	0	*1000*	0	*20.8*	*13-36*	198.8	*4.62*	*40*

The following samples were analyzed in this batch: 1702431-01L

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205809B** Instrument ID **VMS5** Method: **E624**

MBLK Sample ID: **VBLKW1-170209-R205809B** Units: **µg/L** Analysis Date: **2/10/2017 11:11 AM**
Client ID: Run ID: **VMS5_170210A** SeqNo: **4282701** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	0.36	1.0								
1,1,2,2-Tetrachloroethane	U	0.19	1.0								
1,1,2-Trichloroethane	U	0.4	1.0								
1,1-Dichloroethane	U	0.31	1.0								
1,1-Dichloroethene	U	0.28	1.0								
1,2-Dichloroethane	U	0.17	1.0								
1,2-Dichloropropane	U	0.25	1.0								
2-Chloroethyl vinyl ether	U	10	10								
Acrolein	U	2.5	10								
Acrylonitrile	U	0.18	1.0								
Benzene	U	0.3	1.0								
Bromodichloromethane	U	0.23	1.0								
Bromoform	U	0.77	1.0								
Bromomethane	U	0.38	1.0								
Carbon tetrachloride	U	0.31	1.0								
Chlorobenzene	U	0.27	1.0								
Chloroethane	U	0.29	1.0								
Chloroform	U	0.26	1.0								
Chloromethane	U	0.17	1.0								
cis-1,3-Dichloropropene	U	0.39	1.0								
Dibromochloromethane	U	0.38	1.0								
Ethylbenzene	U	0.4	1.0								
Methylene chloride	U	0.56	5.0								
Tetrachloroethene	U	0.27	1.0								
Toluene	U	0.37	1.0								
trans-1,2-Dichloroethene	U	0.28	1.0								
trans-1,3-Dichloropropene	U	0.82	1.0								
Vinyl chloride	U	0.2	1.0								
1,3-Dichloropropene, Total	U	1.2	2.0								
Surr: 1,2-Dichloroethane-d4	*19.77*	0	0	*20*	0	*98.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.39*	0	0	*20*	0	*97*	*80-110*	0			
Surr: Dibromofluoromethane	*19.74*	0	0	*20*	0	*98.7*	*85-115*	0			
Surr: Toluene-d8	*19.5*	0	0	*20*	0	*97.5*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205809B** Instrument ID **VMS5** Method: **E624**

LCS Sample ID: **VLCSW1-170210-R205809B** Units: **µg/L** Analysis Date: **2/10/2017 09:52 AM**
Client ID: Run ID: **VMS5_170210A** SeqNo: **4282700** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.23	0.36	1.0	20	0	106	75-130	0			
1,1,2,2-Tetrachloroethane	23.22	0.19	1.0	20	0	116	75-130	0			
1,1,2-Trichloroethane	21.89	0.4	1.0	20	0	109	75-125	0			
1,1-Dichloroethane	22.1	0.31	1.0	20	0	110	75-133	0			
1,1-Dichloroethene	22.6	0.28	1.0	20	0	113	70-145	0			
1,2-Dichloroethane	20.52	0.17	1.0	20	0	103	78-125	0			
1,2-Dichloropropane	20.62	0.25	1.0	20	0	103	75-125	0			
Acrylonitrile	19.57	0.18	1.0	20	0	97.8	60-140	0			
Benzene	21.86	0.3	1.0	20	0	109	85-125	0			
Bromodichloromethane	20.85	0.23	1.0	20	0	104	75-125	0			
Bromoform	21.66	0.77	1.0	20	0	108	60-125	0			
Bromomethane	28.05	0.38	1.0	20	0	140	30-185	0			
Carbon tetrachloride	21.57	0.31	1.0	20	0	108	65-140	0			
Chlorobenzene	21.85	0.27	1.0	20	0	109	80-120	0			
Chloroethane	19.37	0.29	1.0	20	0	96.8	50-140	0			
Chloroform	20.9	0.26	1.0	20	0	104	80-130	0			
Chloromethane	20.29	0.17	1.0	20	0	101	46-148	0			
cis-1,3-Dichloropropene	22	0.39	1.0	20	0	110	70-130	0			
Dibromochloromethane	21.09	0.38	1.0	20	0	105	60-115	0			
Ethylbenzene	23.38	0.4	1.0	20	0	117	85-125	0			
Methylene chloride	22.56	0.56	5.0	20	0	113	75-140	0			
Tetrachloroethene	22.55	0.27	1.0	20	0	113	68-166	0			
Toluene	22.59	0.37	1.0	20	0	113	85-125	0			
trans-1,2-Dichloroethene	22.28	0.28	1.0	20	0	111	80-140	0			
trans-1,3-Dichloropropene	20.29	0.82	1.0	20	0	101	56-132	0			
Vinyl chloride	17.81	0.2	1.0	20	0	89	50-136	0			
Surr: 1,2-Dichloroethane-d4	*18.97*	0	0	*20*	0	*94.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.64*	0	0	*20*	0	*103*	*80-110*	0			
Surr: Dibromofluoromethane	*19.81*	0	0	*20*	0	*99*	*85-115*	0			
Surr: Toluene-d8	*19.92*	0	0	*20*	0	*99.6*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205809B** Instrument ID **VMS5** Method: **E624**

MS Sample ID: **1702506-05A MS** Units: **µg/L** Analysis Date: **2/10/2017 07:56 PM**

Client ID: Run ID: **VMS5_170210A** SeqNo: **4282716** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	318.5	3.6	10	300	0	106	75-130	0			
1,1,2,2-Tetrachloroethane	350.5	1.9	10	300	0	117	75-130	0			
1,1,2-Trichloroethane	359.1	4	10	300	0	120	75-125	0			
1,1-Dichloroethane	289.2	3.1	10	300	0	96.4	75-133	0			
1,1-Dichloroethene	309.7	2.8	10	300	0	103	70-145	0			
1,2-Dichloroethane	302.7	1.7	10	300	0	101	78-125	0			
1,2-Dichloropropane	308.8	2.5	10	300	0	103	75-125	0			
Acrylonitrile	242.9	1.8	10	300	0	81	60-140	0			
Benzene	324.3	3	10	300	0	108	85-125	0			
Bromodichloromethane	303.2	2.3	10	300	0	101	75-125	0			
Bromoform	334.5	7.7	10	300	0	112	60-125	0			
Bromomethane	136.6	3.8	10	300	0	45.5	30-185	0			
Carbon tetrachloride	346.8	3.1	10	300	0	116	65-140	0			
Chlorobenzene	360.6	2.7	10	300	0	120	80-120	0			S
Chloroethane	274.4	2.9	10	300	0	91.5	50-140	0			
Chloroform	281.9	2.6	10	300	4.24	92.6	80-130	0			
Chloromethane	276.2	1.7	10	300	0	92.1	46-148	0			
cis-1,3-Dichloropropene	304.7	3.9	10	300	0	102	70-130	0			
Dibromochloromethane	337	3.8	10	300	0	112	60-115	0			
Ethylbenzene	387.9	4	10	300	0.39	129	85-125	0			S
Methylene chloride	301.2	5.6	50	300	0.96	100	75-140	0			
Tetrachloroethene	410.7	2.7	10	300	0.9	137	68-166	0			
Toluene	372.4	3.7	10	300	2.04	123	85-125	0			
trans-1,2-Dichloroethene	299.1	2.8	10	300	0	99.7	80-140	0			
trans-1,3-Dichloropropene	313.2	8.2	10	300	0	104	56-132	0			
Vinyl chloride	249	2	10	300	0	83	50-136	0			
Surr: 1,2-Dichloroethane-d4	*206.2*	0	0	*200*	0	*103*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*191.2*	0	0	*200*	0	*95.6*	*80-110*	0			
Surr: Dibromofluoromethane	*200.6*	0	0	*200*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*219*	0	0	*200*	0	*110*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205809B** Instrument ID **VMS5** Method: **E624**

MSD Sample ID: **1702506-05A MSD** Units: **µg/L** Analysis Date: **2/10/2017 08:23 PM**
Client ID: Run ID: **VMS5_170210A** SeqNo: **4282717** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	323.5	3.6	10	300	0	108	75-130	318.5	1.56	30	
1,1,2,2-Tetrachloroethane	383	1.9	10	300	0	128	75-130	350.5	8.86	30	
1,1,2-Trichloroethane	370.4	4	10	300	0	123	75-125	359.1	3.1	30	
1,1-Dichloroethane	304.7	3.1	10	300	0	102	75-133	289.2	5.22	30	
1,1-Dichloroethene	330.8	2.8	10	300	0	110	70-145	309.7	6.59	30	
1,2-Dichloroethane	302.1	1.7	10	300	0	101	78-125	302.7	0.198	30	
1,2-Dichloropropane	310.4	2.5	10	300	0	103	75-125	308.8	0.517	30	
Acrylonitrile	253.8	1.8	10	300	0	84.6	60-140	242.9	4.39	30	
Benzene	326.1	3	10	300	0	109	85-125	324.3	0.554	30	
Bromodichloromethane	315.3	2.3	10	300	0	105	75-125	303.2	3.91	30	
Bromoform	354.7	7.7	10	300	0	118	60-125	334.5	5.86	30	
Bromomethane	198.2	3.8	10	300	0	66.1	30-185	136.6	36.8	30	R
Carbon tetrachloride	357.2	3.1	10	300	0	119	65-140	346.8	2.95	30	
Chlorobenzene	380.4	2.7	10	300	0	127	80-120	360.6	5.34	30	S
Chloroethane	280.6	2.9	10	300	0	93.5	50-140	274.4	2.23	30	
Chloroform	292.1	2.6	10	300	4.24	96	80-130	281.9	3.55	30	
Chloromethane	294.6	1.7	10	300	0	98.2	46-148	276.2	6.45	30	
cis-1,3-Dichloropropene	312.6	3.9	10	300	0	104	70-130	304.7	2.56	30	
Dibromochloromethane	350.6	3.8	10	300	0	117	60-115	337	3.96	30	S
Ethylbenzene	408.1	4	10	300	0.39	136	85-125	387.9	5.08	30	S
Methylene chloride	312.1	5.6	50	300	0.96	104	75-140	301.2	3.55	30	
Tetrachloroethene	431.1	2.7	10	300	0.9	143	68-166	410.7	4.85	30	
Toluene	392.3	3.7	10	300	2.04	130	85-125	372.4	5.2	30	S
trans-1,2-Dichloroethene	310.2	2.8	10	300	0	103	80-140	299.1	3.64	30	
trans-1,3-Dichloropropene	326.4	8.2	10	300	0	109	56-132	313.2	4.13	30	
Vinyl chloride	264.1	2	10	300	0	88	50-136	249	5.89	30	
Surr: 1,2-Dichloroethane-d4	*199.8*	0	0	*200*	0	*99.9*	*75-120*	206.2	*3.15*	*30*	
Surr: 4-Bromofluorobenzene	*188*	0	0	*200*	0	*94*	*80-110*	191.2	*1.69*	*30*	
Surr: Dibromofluoromethane	*192.7*	0	0	*200*	0	*96.4*	*85-115*	200.6	*4.02*	*30*	
Surr: Toluene-d8	*218.8*	0	0	*200*	0	*109*	*85-110*	219	*0.0914*	*30*	

The following samples were analyzed in this batch: 1702431-01K 1702431-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206078** Instrument ID **VMS7** Method: **E624**

MBLK Sample ID: **VBLKW1-170215-R206078** Units: **µg/L** Analysis Date: **2/15/2017 12:23 PM**
Client ID: Run ID: **VMS7_170215A** SeqNo: **4289144** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	0.36	1.0								
1,1,2,2-Tetrachloroethane	U	0.19	1.0								
1,1,2-Trichloroethane	U	0.4	1.0								
1,1-Dichloroethane	U	0.31	1.0								
1,1-Dichloroethene	U	0.28	1.0								
1,2-Dichloroethane	U	0.17	1.0								
1,2-Dichloropropane	U	0.25	1.0								
2-Chloroethyl vinyl ether	U	10	10								
Acrolein	U	2.5	10								
Acrylonitrile	U	0.18	1.0								
Benzene	U	0.3	1.0								
Bromodichloromethane	U	0.23	1.0								
Bromoform	U	0.77	1.0								
Bromomethane	U	0.38	1.0								
Carbon tetrachloride	U	0.31	1.0								
Chlorobenzene	U	0.27	1.0								
Chloroethane	U	0.29	1.0								
Chloroform	U	0.26	1.0								
Chloromethane	U	0.17	1.0								
cis-1,3-Dichloropropene	U	0.39	1.0								
Dibromochloromethane	U	0.38	1.0								
Ethylbenzene	U	0.4	1.0								
Methylene chloride	U	0.56	5.0								
Tetrachloroethene	U	0.27	1.0								
Toluene	U	0.37	1.0								
trans-1,2-Dichloroethene	U	0.28	1.0								
trans-1,3-Dichloropropene	U	0.82	1.0								
Vinyl chloride	U	0.2	1.0								
1,3-Dichloropropene, Total	U	1.2	2.0								
Surr: 1,2-Dichloroethane-d4	*19.28*	0	0	*20*	0	*96.4*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.26*	0	0	*20*	0	*96.3*	*80-110*	0			
Surr: Dibromofluoromethane	*18.75*	0	0	*20*	0	*93.8*	*85-115*	0			
Surr: Toluene-d8	*19.4*	0	0	*20*	0	*97*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206078** Instrument ID **VMS7** Method: **E624**

LCS Sample ID: **VLCSW1-170215-R206078** Units: **µg/L** Analysis Date: **2/15/2017 11:35 AM**
Client ID: Run ID: **VMS7_170215A** SeqNo: **4289143** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.08	0.36	1.0	20	0	115	75-130	0			
1,1,2,2-Tetrachloroethane	20.85	0.19	1.0	20	0	104	75-130	0			
1,1,2-Trichloroethane	23.28	0.4	1.0	20	0	116	75-125	0			
1,1-Dichloroethane	23.3	0.31	1.0	20	0	116	75-133	0			
1,1-Dichloroethene	21.57	0.28	1.0	20	0	108	70-145	0			
1,2-Dichloroethane	22.76	0.17	1.0	20	0	114	78-125	0			
1,2-Dichloropropane	21.92	0.25	1.0	20	0	110	75-125	0			
Acrylonitrile	23.63	0.18	1.0	20	0	118	60-140	0			
Benzene	22.63	0.3	1.0	20	0	113	85-125	0			
Bromodichloromethane	23.08	0.23	1.0	20	0	115	75-125	0			
Bromoform	21.47	0.77	1.0	20	0	107	60-125	0			
Bromomethane	19.74	0.38	1.0	20	0	98.7	30-185	0			
Carbon tetrachloride	21.89	0.31	1.0	20	0	109	65-140	0			
Chlorobenzene	23.49	0.27	1.0	20	0	117	80-120	0			
Chloroethane	20.79	0.29	1.0	20	0	104	50-140	0			
Chloroform	22.56	0.26	1.0	20	0	113	80-130	0			
Chloromethane	20.3	0.17	1.0	20	0	102	46-148	0			
cis-1,3-Dichloropropene	21.03	0.39	1.0	20	0	105	70-130	0			
Dibromochloromethane	20.45	0.38	1.0	20	0	102	60-115	0			
Ethylbenzene	22.76	0.4	1.0	20	0	114	85-125	0			
Methylene chloride	21.11	0.56	5.0	20	0	106	75-140	0			
Tetrachloroethene	34.19	0.27	1.0	20	0	171	68-166	0			S
Toluene	23.02	0.37	1.0	20	0	115	85-125	0			
trans-1,2-Dichloroethene	23.37	0.28	1.0	20	0	117	80-140	0			
trans-1,3-Dichloropropene	22.08	0.82	1.0	20	0	110	56-132	0			
Vinyl chloride	20.42	0.2	1.0	20	0	102	50-136	0			
Surr: 1,2-Dichloroethane-d4	*19.86*	0	0	*20*	0	*99.3*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.17*	0	0	*20*	0	*101*	*80-110*	0			
Surr: Dibromofluoromethane	*20.14*	0	0	*20*	0	*101*	*85-115*	0			
Surr: Toluene-d8	*19.52*	0	0	*20*	0	*97.6*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206078** Instrument ID **VMS7** Method: **E624**

MS Sample ID: **1702431-01K MS** Units: **µg/L** Analysis Date: **2/15/2017 09:04 PM**
Client ID: **Outfall 007** Run ID: **VMS7_170215A** SeqNo: **4289148** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	203.9	3.6	10	200	0	102	75-130	0			
1,1,2,2-Tetrachloroethane	181.1	1.9	10	200	0	90.6	75-130	0			
1,1,2-Trichloroethane	202.4	4	10	200	0	101	75-125	0			
1,1-Dichloroethane	213	3.1	10	200	0	106	75-133	0			
1,1-Dichloroethene	202.2	2.8	10	200	0	101	70-145	0			
1,2-Dichloroethane	207.3	1.7	10	200	0	104	78-125	0			
1,2-Dichloropropane	195.9	2.5	10	200	0	98	75-125	0			
Acrylonitrile	209.1	1.8	10	200	0	105	60-140	0			
Benzene	211	3	10	200	0	106	85-125	0			
Bromodichloromethane	191.1	2.3	10	200	0	95.6	75-125	0			
Bromoform	154.1	7.7	10	200	0	77	60-125	0			
Bromomethane	165.1	3.8	10	200	0	82.6	30-185	0			
Carbon tetrachloride	189.5	3.1	10	200	0	94.8	65-140	0			
Chlorobenzene	205.9	2.7	10	200	0	103	80-120	0			
Chloroethane	184.7	2.9	10	200	0	92.4	50-140	0			
Chloroform	205.4	2.6	10	200	0	103	80-130	0			
Chloromethane	179.1	1.7	10	200	0	89.6	46-148	0			
cis-1,3-Dichloropropene	164.4	3.9	10	200	0	82.2	70-130	0			
Dibromochloromethane	155.4	3.8	10	200	0	77.7	60-115	0			
Ethylbenzene	205	4	10	200	0	102	85-125	0			
Methylene chloride	191.3	5.6	50	200	0	95.6	75-140	0			
Tetrachloroethene	301.7	2.7	10	200	0	151	68-166	0			
Toluene	206.5	3.7	10	200	0	103	85-125	0			
trans-1,2-Dichloroethene	207.7	2.8	10	200	0	104	80-140	0			
trans-1,3-Dichloropropene	162.4	8.2	10	200	0	81.2	56-132	0			
Vinyl chloride	187.9	2	10	200	0	94	50-136	0			
Surr: 1,2-Dichloroethane-d4	*199.1*	0	0	*200*	0	*99.6*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*197.9*	0	0	*200*	0	*99*	*80-110*	0			
Surr: Dibromofluoromethane	*202.7*	0	0	*200*	0	*101*	*85-115*	0			
Surr: Toluene-d8	*195.7*	0	0	*200*	0	*97.8*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206078** Instrument ID **VMS7** Method: **E624**

MSD Sample ID: **1702431-01K MSD** Units: **µg/L** Analysis Date: **2/15/2017 09:27 PM**
Client ID: **Outfall 007** Run ID: **VMS7_170215A** SeqNo: **4289149** Prep Date: DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	204.3	3.6	10	200	0	102	75-130	203.9	0.196	30	
1,1,2,2-Tetrachloroethane	184.3	1.9	10	200	0	92.2	75-130	181.1	1.75	30	
1,1,2-Trichloroethane	208.1	4	10	200	0	104	75-125	202.4	2.78	30	
1,1-Dichloroethane	211.7	3.1	10	200	0	106	75-133	213	0.612	30	
1,1-Dichloroethene	204.3	2.8	10	200	0	102	70-145	202.2	1.03	30	
1,2-Dichloroethane	207.2	1.7	10	200	0	104	78-125	207.3	0.0483	30	
1,2-Dichloropropane	200.6	2.5	10	200	0	100	75-125	195.9	2.37	30	
Acrylonitrile	211.8	1.8	10	200	0	106	60-140	209.1	1.28	30	
Benzene	211	3	10	200	0	106	85-125	211	0	30	
Bromodichloromethane	191	2.3	10	200	0	95.5	75-125	191.1	0.0523	30	
Bromoform	153.2	7.7	10	200	0	76.6	60-125	154.1	0.586	30	
Bromomethane	173.7	3.8	10	200	0	86.8	30-185	165.1	5.08	30	
Carbon tetrachloride	188.1	3.1	10	200	0	94	65-140	189.5	0.742	30	
Chlorobenzene	210.3	2.7	10	200	0	105	80-120	205.9	2.11	30	
Chloroethane	180.7	2.9	10	200	0	90.4	50-140	184.7	2.19	30	
Chloroform	204.8	2.6	10	200	0	102	80-130	205.4	0.293	30	
Chloromethane	177.7	1.7	10	200	0	88.8	46-148	179.1	0.785	30	
cis-1,3-Dichloropropene	166.3	3.9	10	200	0	83.2	70-130	164.4	1.15	30	
Dibromochloromethane	157.9	3.8	10	200	0	79	60-115	155.4	1.6	30	
Ethylbenzene	206	4	10	200	0	103	85-125	205	0.487	30	
Methylene chloride	196.7	5.6	50	200	0	98.4	75-140	191.3	2.78	30	
Tetrachloroethene	299	2.7	10	200	0	150	68-166	301.7	0.899	30	
Toluene	206.6	3.7	10	200	0	103	85-125	206.5	0.0484	30	
trans-1,2-Dichloroethene	210.3	2.8	10	200	0	105	80-140	207.7	1.24	30	
trans-1,3-Dichloropropene	165.6	8.2	10	200	0	82.8	56-132	162.4	1.95	30	
Vinyl chloride	189.4	2	10	200	0	94.7	50-136	187.9	0.795	30	
Surr: 1,2-Dichloroethane-d4	*200.1*	0	0	*200*	0	*100*	*75-120*	199.1	*0.501*	*30*	
Surr: 4-Bromofluorobenzene	*200.9*	0	0	*200*	0	*100*	*80-110*	197.9	*1.5*	*30*	
Surr: Dibromofluoromethane	*194.4*	0	0	*200*	0	*97.2*	*85-115*	202.7	*4.18*	*30*	
Surr: Toluene-d8	*193.1*	0	0	*200*	0	*96.6*	*85-110*	195.7	*1.34*	*30*	

The following samples were analyzed in this batch: 1702431-01K

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98041** Instrument ID **LACHAT** Method: **A4500-NH3 G-97**

MBLK Sample ID: **MBLK-98041-98041** Units: **mg/L** Analysis Date: **2/13/2017 10:52 AM**
Client ID: Run ID: **LACHAT_170213B** SeqNo: **4283953** Prep Date: **2/9/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	U	0.48	1.0								

LCS Sample ID: **LCS-98041-98041** Units: **mg/L** Analysis Date: **2/13/2017 10:52 AM**
Client ID: Run ID: **LACHAT_170213B** SeqNo: **4283954** Prep Date: **2/9/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	9.129	0.48	1.0	10	0	91.3	90-110	0			

MS Sample ID: **1702363-19B MS** Units: **mg/L** Analysis Date: **2/13/2017 10:52 AM**
Client ID: Run ID: **LACHAT_170213B** SeqNo: **4283960** Prep Date: **2/9/2017** DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	52.11	4.8	10	10	41.68	104	75-125	0			O

MSD Sample ID: **1702363-19B MSD** Units: **mg/L** Analysis Date: **2/13/2017 10:52 AM**
Client ID: Run ID: **LACHAT_170213B** SeqNo: **4283961** Prep Date: **2/9/2017** DF: **10**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	59.6	4.8	10	10	41.68	179	75-125	52.11	13.4	30	SO

LCS2 Sample ID: **LCS2-98041-98041** Units: **mg/L** Analysis Date: **2/13/2017 10:52 AM**
Client ID: Run ID: **LACHAT_170213B** SeqNo: **4283962** Prep Date: **2/9/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Total Kjeldahl	9.966	0.48	1.0	10	0	99.7	90-110	0			

The following samples were analyzed in this batch: 1702431-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98079** Instrument ID **LACHAT** Method: **E335.4 R1.0**

MBLK Sample ID: **MBLK-98079-98079** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281883** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.002	0.0050								

MBLK Sample ID: **MBLK-98079-98079** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281910** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.002	0.0050								

MBLK Sample ID: **MBLK-98079-98079** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281921** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.002	0.0050								

LCS Sample ID: **LCS-98079-98079** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281884** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.241	0.002	0.0050	0.25	0	96.4	90-110	0			

LCS Sample ID: **LCS-98079-98079** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281911** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.241	0.002	0.0050	0.25	0	96.4	90-110	0			

LCS Sample ID: **LCS-98079-98079** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281922** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.241	0.002	0.0050	0.25	0	96.4	82-122	0			

MS Sample ID: **1702444-11C MS** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281886** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	3.323	0.02	0.050	2.5	0.6781	106	90-110	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98079** Instrument ID **LACHAT** Method: **E335.4 R1.0**

MS Sample ID: **1702367-01C MS** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281913** Prep Date: **2/10/2017** DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.6642	0.004	0.010	0.25	0.4066	103	70-130	0			

MSD Sample ID: **1702444-11C MSD** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281887** Prep Date: **2/10/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	3.325	0.02	0.050	2.5	0.6781	106	90-110	3.323	0.0602	20	

MSD Sample ID: **1702367-01C MSD** Units: **mg/L** Analysis Date: **2/10/2017 12:15 PM**
Client ID: Run ID: **LACHAT_170210D** SeqNo: **4281914** Prep Date: **2/10/2017** DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.6482	0.004	0.010	0.25	0.4066	96.6	70-130	0.6642	2.44	30	

The following samples were analyzed in this batch: 1702431-01I

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98141** Instrument ID **LACHAT** Method: **E420.4**

MBLK Sample ID: **MBLK-98141-98141** Units: **mg/L** Analysis Date: **2/15/2017 01:46 PM**
Client ID: Run ID: **LACHAT_170215E** SeqNo: **4288421** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	U	0.002	0.010								

LCS Sample ID: **LCS-98141-98141** Units: **mg/L** Analysis Date: **2/15/2017 01:46 PM**
Client ID: Run ID: **LACHAT_170215E** SeqNo: **4288422** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1012	0.002	0.010	0.1	0	101	90-110	0			

MS Sample ID: **1702522-02C MS** Units: **mg/L** Analysis Date: **2/15/2017 01:46 PM**
Client ID: Run ID: **LACHAT_170215E** SeqNo: **4288426** Prep Date: **2/13/2017** DF: **5**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4079	0.01	0.050	0.1	0.503	-95.1	90-110	0			SO

MSD Sample ID: **1702522-02C MSD** Units: **mg/L** Analysis Date: **2/15/2017 01:46 PM**
Client ID: Run ID: **LACHAT_170215E** SeqNo: **4288427** Prep Date: **2/13/2017** DF: **5**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4096	0.01	0.050	0.1	0.503	-93.4	90-110	0.4079	0.428	20	SO

The following samples were analyzed in this batch: 1702431-01J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205761** Instrument ID **LACHAT2** Method: **A4500-NH3 G-97**

MBLK Sample ID: **MBLK-R205761** Units: **mg NH3-N/L** Analysis Date: **2/9/2017 11:48 AM**
Client ID: Run ID: **LACHAT2_170209A** SeqNo: **4280251** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	U	0.005	0.020								

LCS Sample ID: **LCS-R205761** Units: **mg NH3-N/L** Analysis Date: **2/9/2017 11:48 AM**
Client ID: Run ID: **LACHAT2_170209A** SeqNo: **4280252** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	1.075	0.005	0.020	1	0	108	80-120	0			

MS Sample ID: **1702431-01D MS** Units: **mg NH3-N/L** Analysis Date: **2/9/2017 11:48 AM**
Client ID: **Outfall 007** Run ID: **LACHAT2_170209A** SeqNo: **4280256** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.7803	0.005	0.020	1	-0.04884	82.9	75-125	0			

MSD Sample ID: **1702431-01D MSD** Units: **mg NH3-N/L** Analysis Date: **2/9/2017 11:48 AM**
Client ID: **Outfall 007** Run ID: **LACHAT2_170209A** SeqNo: **4280257** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.7789	0.005	0.020	1	-0.04884	82.8	75-125	0.7803	0.18	25	

The following samples were analyzed in this batch: 1702431-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205847** Instrument ID **LACHAT2** Method: **E365.1 R2.0**

MBLK Sample ID: **MBLK-R205847** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282105** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	U	0.024	0.050								

LCS Sample ID: **LCS-R205847** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282150** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.061	0.024	0.050	1	0	106	90-110	0			

MS Sample ID: **1702068-07B MS** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282109** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.304	0.024	0.050	1	0.2451	106	90-110	0			

MS Sample ID: **1702350-01A MS** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282148** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.301	0.024	0.050	1	0.2388	106	90-110	0			

MSD Sample ID: **1702068-07B MSD** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282110** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.313	0.024	0.050	1	0.2451	107	90-110	1.304	0.688	20	

MSD Sample ID: **1702350-01A MSD** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282149** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	1.301	0.024	0.050	1	0.2388	106	90-110	1.301	0	20	

LCS2 Sample ID: **LCS2-R205847** Units: **mg/L** Analysis Date: **2/10/2017 08:36 AM**
Client ID: Run ID: **LACHAT2_170210B** SeqNo: **4282153** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	0.9248	0.024	0.050	1	0	92.5	90-110	0			

The following samples were analyzed in this batch: 1702431-01G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205879B** Instrument ID **TOC3** Method: **A5310C-00**

MBLK Sample ID: **MBLK-R205879B** Units: **mg/L** Analysis Date: **2/10/2017 01:39 PM**
Client ID: Run ID: **TOC3_170210A** SeqNo: **4282854** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	U	0.039	0.50								

LCS Sample ID: **LCS-R205879B** Units: **mg/L** Analysis Date: **2/10/2017 01:39 PM**
Client ID: Run ID: **TOC3_170210A** SeqNo: **4282855** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	5.175	0.039	0.50	5	0	104	91-110	0			

MS Sample ID: **1702393-01A MS** Units: **mg/L** Analysis Date: **2/10/2017 01:39 PM**
Client ID: Run ID: **TOC3_170210A** SeqNo: **4282831** Prep Date: DF: **4**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	24.62	0.16	2.0	20	2.257	112	87-120	0			

MSD Sample ID: **1702393-01A MSD** Units: **mg/L** Analysis Date: **2/10/2017 01:39 PM**
Client ID: Run ID: **TOC3_170210A** SeqNo: **4282832** Prep Date: DF: **4**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	23.73	0.16	2.0	20	2.257	107	87-120	24.62	3.71	10	

The following samples were analyzed in this batch: 1702431-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R205897** Instrument ID **WETCHEM** Method: **E410.4 R2.0**

MBLK Sample ID: **CCB/MBLK-R205897** Units: **mg/L** Analysis Date: **2/10/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170210E** SeqNo: **4283597** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	U	3	5.0								

LCS Sample ID: **CCV/LCS-R205897** Units: **mg/L** Analysis Date: **2/10/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170210E** SeqNo: **4283596** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	29.83	3	5.0	30	0	99.4	90-110	0			

MS Sample ID: **0702330-01D MS** Units: **mg/L** Analysis Date: **2/10/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170210E** SeqNo: **4283722** Prep Date: DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	46.34	5.9	10	30	0	154	90-110	0			S

MS Sample ID: **1702511-01D MS** Units: **mg/L** Analysis Date: **2/10/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170210E** SeqNo: **4284046** Prep Date: DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	61	5.9	10	30	10.49	168	90-110	0			S

MSD Sample ID: **1702330-01D MSD** Units: **mg/L** Analysis Date: **2/10/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170210E** SeqNo: **4283723** Prep Date: DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	47.66	5.9	10	30	5.83	139	90-110	0			S

MSD Sample ID: **1702511-01D MSD** Units: **mg/L** Analysis Date: **2/10/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170210E** SeqNo: **4284047** Prep Date: DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	59	5.9	10	30	10.49	162	90-110	61	3.33	20	S

The following samples were analyzed in this batch: 1702431-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206027** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

MBLK Sample ID: **MBLK-R206027** Units: **mg/L** Analysis Date: **2/14/2017 12:58 PM**
Client ID: Run ID: **LACHAT2_170214C** SeqNo: **4286318** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	U	0.013	0.020								

LCS Sample ID: **LCS-R206027** Units: **mg/L** Analysis Date: **2/14/2017 12:58 PM**
Client ID: Run ID: **LACHAT2_170214C** SeqNo: **4286319** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	5.224	0.013	0.020	5	0	104	80-120	0			

MS Sample ID: **1702287-04B MS** Units: **mg/L** Analysis Date: **2/14/2017 12:58 PM**
Client ID: Run ID: **LACHAT2_170214C** SeqNo: **4286321** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	4.883	0.013	0.020	5	-0.003201	97.7	75-125	0			

MS Sample ID: **1702537-01B MS** Units: **mg/L** Analysis Date: **2/14/2017 12:58 PM**
Client ID: Run ID: **LACHAT2_170214C** SeqNo: **4286344** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	5.403	0.013	0.020	5	0.4568	98.9	75-125	0			

MSD Sample ID: **1702287-04B MSD** Units: **mg/L** Analysis Date: **2/14/2017 12:58 PM**
Client ID: Run ID: **LACHAT2_170214C** SeqNo: **4286322** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	4.861	0.013	0.020	5	-0.003201	97.3	75-125	4.883	0.452	20	

MSD Sample ID: **1702537-01B MSD** Units: **mg/L** Analysis Date: **2/14/2017 12:58 PM**
Client ID: Run ID: **LACHAT2_170214C** SeqNo: **4286345** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	5.372	0.013	0.020	5	0.4568	98.3	75-125	5.403	0.575	20	

The following samples were analyzed in this batch: 1702431-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: East Kentucky Power Cooperative
Work Order: 1702431
Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **R206060** Instrument ID **IC3** Method: **E300.0**

MBLK Sample ID: **CCB/MBLK-R206060** Units: **mg/L** Analysis Date: **2/14/2017 02:01 PM**
Client ID: Run ID: **IC3_170214A** SeqNo: **4287232** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.11	0.20								

LCS Sample ID: **LCS-R206060** Units: **mg/L** Analysis Date: **2/14/2017 02:21 PM**
Client ID: Run ID: **IC3_170214A** SeqNo: **4287233** Prep Date: DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.903	0.11	0.20	2	0	95.1	90-110	0			

MS Sample ID: **1702652-01F MS** Units: **mg/L** Analysis Date: **2/14/2017 03:22 PM**
Client ID: Run ID: **IC3_170214A** SeqNo: **4287236** Prep Date: DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.861	0.22	0.40	2	0	93	80-120	0			

MSD Sample ID: **1702652-01F MSD** Units: **mg/L** Analysis Date: **2/14/2017 03:42 PM**
Client ID: Run ID: **IC3_170214A** SeqNo: **4287237** Prep Date: DF: **2**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.858	0.22	0.40	2	0	92.9	80-120	1.861	0.183	20	

The following samples were analyzed in this batch: 1702431-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision Date: 01/25/2017

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY 1702431

SHADED AREA FOR ANALYTICAL LAB USE ONLY - EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST. Please Print Legibly

Station:	Sample Description / ID:	Collection Date:
East Kentucky Power Cooperative **H.L. Spurlock Station** 1301 West Second Street Maysville, KY 41056	**Outfall 007**	2-8-17
	Matrix:	Collection Time:
	Water	0909
	Field pH (S.U.)	Temperature (°C)
	8.00	66°
Method of shipment (check one); CL ____ Inhouse ____ Contract ___	KPDES Permit #: KY0022250	

SAMPLE ANALYSIS REQUESTED:	Analysis Method:	Line Item #	Container Type	Container Volume (mL)	# of Containers	Preservative
BOD	SM 5210, B-11	3	Plastic	1000	1	< 6°c
Chemical Oxygen Demand	EPA 410.4 R2.0	4	Amber Glass	120	1	H_2SO_4
Total Organic Carbon	SM 5310C	5	Amber Glass	120	1	H_2SO_4
Ammonia, Nitrogen	A4500-NH3 G-97	6	Plastic	250	1	H_2SO_4
Nitrate-Nitrite,	EPA 353.2 R2.0	7	Amber Glass	250	1	H_2SO_4
Total Organic Nitrogen	Calculation	8				
Bromide	EPA 300.0	9	Plastic	250	1	< 6°c
Total Phosphorus	EPA 365.1 R2.0	10	Amber Glass	120	1	H_2SO_4
Titanium, Total	EPA 200.8	11	Plastic	250	1	HNO_3
Cyanide, Total	EPA 335.4	12	Plastic	250	1	NaOH
Phenolics, Total	EPA 420.4	13	Amber Glass	250	1	H_2SO_4
Volatiles***	EPA 624	20	Glass	40	3	HCl
Semi-Volatiles	EPA 625	21	Amber Glass	1000	2	< 6°c

Collected by: (Signature)	DATE	TIME	Received by: (Signature)
[signature]	2-8-17	1120	[signature]
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
[signature]	2-8-17	1455	[signature]
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
[signature]	2/8/17	1700	FED EX
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)
FED EX	2/9/17	1000	[signature]
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)

Notes/Comments: All invoices must be identified with the EKPC Purchase Order # 0000113572 and the associated Line Item Number.

*** = Trip Blank Included

<6° ALSTC

ALSHN <6.0°c

ALS Group, USA

Sample Receipt Checklist

Client Name: **EKPC** Date/Time Received: **08-Feb-17 14:55**

Work Order: **1702431** Received by: **JAS**

Checklist completed by Janet Smith (eSignature) 08-Feb-17 (Date) Reviewed by: Rebecca Kiser (eSignature) 09-Feb-17 (Date)

Matrices: Water
Carrier name: Client

Shipping container/cooler in good condition?	Yes ✔	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ✔
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ✔
Chain of custody present?	Yes ✔	No ☐	
Chain of custody signed when relinquished and received?	Yes ✔	No ☐	
Chain of custody agrees with sample labels?	Yes ✔	No ☐	
Samples in proper container/bottle?	Yes ✔	No ☐	
Sample containers intact?	Yes ✔	No ☐	
Sufficient sample volume for indicated test?	Yes ✔	No ☐	
All samples received within holding time?	Yes ✔	No ☐	
Container/Temp Blank temperature in compliance?	Yes ✔	No ☐	
Sample(s) received on ice?	Yes ✔	No ☐	
Temperature(s)/Thermometer(s):	<6c	IR	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:			
Water - VOA vials have zero headspace?	Yes ✔	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ✔	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ✔	N/A ☐
pH adjusted by:	-		

Login Notes: Holland <6.0 c

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, February 18, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/7/2016
Permit Number:	KY0022250	Sample Collection Time:	11:45:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	AR
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.95	S.U.			SM 4500-H+, B-2000			1/7/2016	11:45 AM	AR
Flow	0.2000	MGD			Calculated			1/7/2016	11:45 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 160023**

Sample Received Date:	1/11/2016	Sample Receipt Temperature (°C):	3.6
Sample Received Time:	11:20:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	735	mg/L	0.07	1	SM 2340, B-1997			1/13/2016	10:30 AM	EH
Dissolved Solids, Total	1068	mg/L		2.5	SM 2540, C-1997			1/11/2016	1:44 PM	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/11/2016	1/18/2016	10:25 AM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Arsenic, Total	1.1	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Selenium, Total	1.3	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Thallium, Total	0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/13/2016	01/13/2016	10:30 AM	EH
Metals, Total	0.002	mg/L								

ALS Group USA, Corp Analyses — **Lab Identification #: 1601465-03**

Sample Received Date:	1/13/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	4:00:00 PM	Sample Received By:	1601465-03

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	1/18/2016	1/19/2016	2:40 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	1/14/2016	1/15/2016	12:46 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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ALS Group USA, Corp

Date: *20-Jan-16*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: 160023 (S-007)
Collection Date: 1/7/2016 11:45 AM

Work Order: 1601465
Lab ID: 1601465-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL		Method: **E335.4 R1.0**			Prep: SW9012B / 1/18/16		Analyst: **JB**
Cyanide, Total	**0.0043**	J	**0.0030**	**0.0050**	**mg/L**	1	1/19/2016 14:40
PHENOLICS, TOTAL		Method: **E420.4**			Prep: E420.x / 1/14/16		Analyst: **JB**
Phenolics, Total	U		0.0065	0.010	mg/L	1	1/15/2016 12:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/16/2016
Permit Number:	KY0022250	Sample Collection Time:	10:55:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	MWJ
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.89	S.U.			SM 4500-H+, B-2000			4/16/2016	10:55 AM	MWJ
Flow	0.1600	MGD			Calculated			4/16/2016	10:55 AM	MWJ

EKPC - Central Laboratory Analyses **Lab Identification #: 160236**

Sample Received Date:	4/18/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	12:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	596	mg/L	0.07	1	SM 2340, B-1997			4/28/2016	11:27 PM	EH
Dissolved Solids, Total	1206	mg/L		2.5	SM 2540, C-1997			4/19/2016	3:11 PM	EH
Metals										
Low Level Mercury	**	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	**	**	**	**
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Arsenic, Total	1.3	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Thallium, Total	0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Zinc, Total	4.3	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:27 PM	EH
Metals, Total	0.006	mg/L								

Fouser Environmental Services **Lab Identification #: 950397-01**

Sample Received Date:	4/22/2016	Sample Receipt Temperature (°C):	2.0
Sample Received Time:	9:24:00 AM	Sample Received By:	950397-01

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	0.030	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	NDP	5/2/2016	NDP	AW
Phenolics, Total	< 0.05	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	NDP	5/17/2016	NDP	AW

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

** Mercury sample containers were received unpreserved. Samples were received after 48 hours from collection. Sampling team notified. Corrective Action: Samples to be recollected for mercury and preserved within 48 hours.

Approved by:

Chemist

Laboratory Supervisor

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/21/2016
Permit Number:	KY0022250	Sample Collection Time:	1:41:00 PM
Site ID:	**Outfall 007**	Sample Collected by:	JH
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 160264**

Sample Received Date:	4/25/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	12:15:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Metals, Total Recoverable										
Mercury	< 5	ng/L	0.8	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/25/2016	5/12/2016	12:21 PM	JD

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

Laboratory Supervisor

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FES Fouser Environmental Services

165 Camden Avenue Versailles, KY 40383 Phone: 859-873-6211 Fax: 859-873-3715 Email: lab@fouser.com

Laboratory / Consulting

Certificate of Analysis

East Kentucky Power
Mr. Eric Hamilton
P.O. Box 707
Winchester, KY 40391

Project Spurlock Station
Entered By Lynn Ellis
Date Reported 5/23/2016
Date Received 4/22/2016
Date Approved 5/18/2016

Test	Method	Result	Qualifiers	Units	PQL	Date	Initials
950397-01	**S-007 RO Reject**		**4/16/16 10:55**				
Cyanide, Total	Lachat QC CN-1	0.03		mg/L	0.01	5/2/2016	AW
Phenols, Total	EPA 420.1	<0.05		mg/L	0.05	5/17/2016	AW

Approved By Ray Fouser

Ray Fouser, P.E.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, October 13, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/12/2016
Permit Number:	KY0022250	Sample Collection Time:	7:50:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	AR
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.96	S.U.			SM 4500-H+, B-2000			7/12/2016	7:50 AM	AR
Flow	0.2200	MGD			Calculated			7/12/2016	7:50 AM	AR

EKPC - Central Laboratory Analyses **Lab Identification #: 160453**

Sample Received Date:	7/15/2016	Sample Receipt Temperature (°C):	1.0
Sample Received Time:	9:25:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	684	mg/L	0.07	1	SM 2340, B-1997			7/27/2016	6:49 AM	EH
Dissolved Solids, Total	1208	mg/L		25	SM 2540, C-1997			7/19/2016	1:57 PM	JD
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/21/2016	8/5/2016	12:11 PM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Arsenic, Total	2.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Selenium, Total	1.3	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Thallium, Total	0.7	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Metals, Total	0.004	mg/L								

ALS Group USA, Corp **Lab Identification #: 1607880-01**

Sample Received Date:	7/15/2016	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	2:55:00 PM	Sample Received By:	1607880-01

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	7/18/2016	7/19/2016	1:23 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	7/28/2016	7/29/2016	10:42 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, October 13, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	8/24/2016
Permit Number:	KY0022250	Sample Collection Time:	11:07:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	JH
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.93	S.U.			SM 4500-H+, B-2000			8/24/2016	11:07 AM	JH
Flow	0.2300	MGD			Calculated			8/24/2016	11:07 AM	JH

EKPC - Central Laboratory Analyses **Lab Identification #: 160580**

Sample Received Date:	8/29/2016	Sample Receipt Temperature (°C):	3.3
Sample Received Time:	12:30:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	679	mg/L	0.07	1	SM 2340, B-1997			9/7/2016	4:02 PM	JD
Dissolved Solids, Total	1128	mg/L		50	SM 2540, C-1997			8/31/2016	10:35 AM	JD
Metals										
Low Level Mercury	< 25.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	8/31/2016	9/2/2016	11:05 AM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Arsenic, Total	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Cadmium, Total	< 0.15	µg/L	0.10	0.15	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Lead, Total	1.2	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Selenium, Total	2.3	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Thallium, Total	1.0	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:02 PM	JD
Metals, Total	0.005	mg/L								

ALS Group USA, Corp **Lab Identification #: 16081689-01**

Sample Received Date:	8/31/2016	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	3:06:00 PM	Sample Received By:	16081689-01

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	9/6/2016	9/7/2016	3:38 PM	EE
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	9/1/2016	9/2/2016	9:23 AM	JJG

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Friday, January 20, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/6/2016
Permit Number:	KY0022250	Sample Collection Time:	12:52:00 PM
Site ID:	**Outfall 007**	Sample Collected by:	JH
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.67	S.U.			SM 4500-H+, B-2000			10/6/2016	12:52 PM	JH
Flow	0.0700	MGD			Calculated			10/6/2016	12:52 PM	JH

EKPC - Central Laboratory Analyses **Lab Identification #: 160687**

Sample Received Date:	10/10/2016	Sample Receipt Temperature (°C):	0.3
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	501	mg/L	0.07	1	SM 2340, B-1997			11/7/2016	12:38 PM	JD
Dissolved Solids, Total	782	mg/L		50	SM 2540, C-1997			10/10/2016	3:38 PM	JD
Metals										
Low Level Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/10/2016	10/25/2016	6:04 PM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:38 PM	JD
Arsenic, Total	1.2	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:38 PM	JD
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:38 PM	JD
Thallium, Total	1.6	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:38 PM	JD
Zinc, Total	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	6:04 PM	JD
Metals, Total	< 0.019	mg/L	0.007	0.019						

ALS Group USA, Corp **Lab Identification #: 16101078-01**

Sample Received Date:	10/17/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	2:50:00 PM	Sample Received By:	16101078-01

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	10/19/2016	10/19/2016	2:42 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Sample was recollected for cyanide (see 160775). Sample holding time was exceeded at the contract laboratory.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, April 5, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/13/2017
Permit Number:	KY0022250	Sample Collection Time:	10:00:00 AM
Site ID:	Outfall 007	Sample Collected by:	JH
Sample Matrix:	Wastewater	Sample Matrix:	Wastewater
Laboratory Certification ID:	KY# 08012	Samples Chlorinated:	No

EKPC - Central Laboratory Analyses — Lab Identification #: 170114

Sample Received Date:	1/16/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	1:17:00 PM	Sample Received By:	JD

Parameter	Result	Units	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Total Recoverable Metals									
Aluminium, Total	< 50	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:23 PM	JD
Barium, Total	121	µg/L	5	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Boron, Total	286	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:07 AM	JD
Cobalt, Total	< 1.0	µg/L	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Iron, Total	< 50	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Magnesium	41857	µg/L	1000	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/2/2017	6:07 AM	JD
Manganese, Total	7.0	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Molybdenum, Total	120.5	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, March 02, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/13/2017
Permit Number:	KY0022250	Sample Collection Time:	10:00:00 AM
Site ID:	**Outfall 007**	Sample Collected by:	JH
Extended Site ID:	**RO Reject**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2017-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	7.96	S.U.			SM 4500-H+, B-2000			1/13/2017	10:00 AM	JH
Flow	0.2100	MGD			Calculated			1/13/2017	10:00 AM	JH

EKPC - Central Laboratory Analyses **Lab Identification #: 170031**

Sample Received Date:	1/16/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	1:17:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Hardness, Total	666	mg/L	0.07	1	SM 2340, B-1997			2/2/2017	6:17 AM	JD
Dissolved Solids, Total	1054	mg/L		25	SM 2540, C-1997			1/17/2017	1:33 PM	JE
Metals										
Low Level Mercury	<5.0	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/17/2017	1/17/2017	12:31 PM	JE
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Arsenic, Total	1.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:52 PM	JD
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Copper, Total	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Nickel, Total	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Selenium, Total	1.5	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Zinc, Total	18.3	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:04 PM	JD
Metals, Total	0.021	mg/L	0.007	0.019						

ALS Group USA, Corp **Lab Identification #: 17011095-01**

Sample Received Date:	1/23/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	3:25:00 PM	Sample Received By:	17011095-01

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	1/25/2017	1/25/2017	12:50 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	1/25/2017	1/26/2017	9:44 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140009

Sample Date/Time: Wednesday, January 22, 2014 17:28:14
Sample Description:
Batch ID:
Autosampler Position: 16
Sample Prep Volume (mL):
Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌈	**Be**	9.01	**0.02**	ug/L	16.23	107	50
⌊>	**Sc**	44.96		ug/L		789625	870254
⌈	**Ag**	106.91	**0.07**	ug/L	4.14	1388	695
|>	**In**	114.90		ug/L		1224040	1551011
⌊	**Sb**	120.90	**0.99**	ug/L	1.22	9983	361
⌈	**Tl**	204.97	**0.08**	ug/L	1.09	2871	410
|	**Pb**	207.98	**0.24**	ug/L	0.93	9502	859
⌊>	**Bi**	208.98		ug/L		815052	1079304
⌈	**Cr**	51.94	**1.44**	ug/L	6.26	868	36
⌊>	**In-1**	114.90		ug/L		27554	38193
⌈	**Zn**	65.93	**3.11**	ug/L	0.69	427	64
|	**As**	74.92	**13.57**	ug/L	4.34	705	3
|	**Se**	77.92	**2.04**	ug/L	34.63	12	4
|>	**Y**	88.91		ug/L		23844	29971
|	**Ni**	59.93	**1.00**	ug/L	4.52	597	30
|	**Cu**	62.93	**0.67**	ug/L	4.01	1102	165
⌊	**Cd**	110.90	**0.11**	ug/L	18.17	30	7

EAST KENTUCKY POWER COOPERATIVE

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Report Date: Wednesday, May 21, 2014

Certificate of Analysis

tation:	H.L. Spurlock Station	Sample Collection Date:	4/9/2014
Permit Number:	KY0022250	Sample Collection Time:	12:30:00 PM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-06-30		

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.14	S.U.			SM 4500-H+, B-2000			4/9/2014	12:30	AR
Flow	0.1890	MGD			Calculated			4/9/2014	12:30	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 140150**

Sample Received Date:	4/10/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	10:45:00 AM	Sample Received By:	LR

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	575	mg/L	0.02	1	SM 2340, B-1997			5/1/2014	17:10	EH
Suspended Solids, Total	4.3	mg/L		2.5	SM 2540, D-1997			4/15/2014	8:10	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/10/2014	4/28/2014	2:12 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Arsenic, Total	15.9	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Cadmium, Total	0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Nickel, Total	< 1.0	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Selenium, Total	1.2	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Thallium, Total	0.2	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Metals, Total	0.017	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	4/17/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	7:30:00 AM	Sample Received By:	JW

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			4/16/2014	15:03	SRC
Phenolics, Total	< 0.050	mL/L	0.006	0.05	E420.4			4/16/2014	16:11	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

By virtue of the information provided on this certificate as complete and accurate to the best of my knowledge and ability.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, August 25, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/28/2014
Permit Number:	KY0022250	Sample Collection Time:	11:39:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	JH
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-09-30		

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.21	S.U.			SM 4500-H+, B-2000			7/28/2014	11:39	JH
Flow	0.1210	MGD			Calculated			7/28/2014	11:39	JH

EKPC - Central Laboratory Analyses **Lab Identification #: 140264**

Sample Received Date:	7/29/2014	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	3:20:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	988	mg/L	0.02	1	SM 2340, B-1997			8/6/2014	10:01	EH
Suspended Solids, Total	10.1	mg/L		2.5	SM 2540, D-1997			7/30/2014	10:29	JD
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/30/2014	8/7/2014	12:19 PM	EH
Antimony, Total	1.1	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Arsenic, Total	37.9	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Cadmium, Total	0.8	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Chromium, Total	1.7	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Nickel, Total	< 1.0	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Selenium, Total	2.2	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Thallium, Total	0.4	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	08/11/2014	08/13/2014	17:53	EH
Metals, Total	0.044	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	8/4/2014	Sample Receipt Temperature (°C):	1.8
Sample Received Time:	11:15:00 AM	Sample Received By:	KK

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			8/7/2014	13:30	SRC
Phenolics, Total	< 0.05	mL/L	0.006	0.05	E420.4			8/8/2014	14:41	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Friday, October 31, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/9/2014
Permit Number:	KY0022250	Sample Collection Time:	9:49:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	MW
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.17	S.U.			SM 4500-H+, B-2000			10/9/2014	9:49	MW
Flow	0.0600	MGD			Calculated			10/9/2014	9:49	MW

EKPC - Central Laboratory Analyses **Lab Identification #: 140361**

Sample Received Date:	10/13/2014	Sample Receipt Temperature (°C):	1.6
Sample Received Time:	12:50:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	1141	mg/L	0.02	1	SM 2340, B-1997			10/29/2014	9:53	EH
Suspended Solids, Total	< 2.5	mg/L		2.5	SM 2540, D-1997			10/13/2014	15:05	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/13/2014	10/22/2014	1:04 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Arsenic, Total	4.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Cadmium, Total	0.3	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Nickel, Total	< 1.0	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Selenium, Total	4.2	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Thallium, Total	< 0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/16/2014	10/17/2014	12:52	EH
Metals, Total Recoverable	0.009	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	10/15/2014	Sample Receipt Temperature (°C):	1.6
Sample Received Time:	2:20:00 PM	Sample Received By:	KM

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			10/21/2014	16:30	SRC
Phenolics, Total	< 0.050	mg/L	0.006	0.05	E420.4			10/30/2014	10:56	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.
MLI # 014039837

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, March 30, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	3/12/2015
Permit Number:	KY0022250	Sample Collection Time:	10:06:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	7.90	S.U.			SM 4500-H+, B-2000			3/12/2015	10:06 AM	AR
Flow	0.1890	MGD			Calculated			3/12/2015	10:06 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150089**

Sample Received Date:	3/16/2015	Sample Receipt Temperature (°C):	3.1
Sample Received Time:	1:20:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	841	mg/L	0.07	1	SM 2340, B-1997			3/20/2015	11:17 AM	EH
Suspended Solids, Total	21.1	mg/L		2.5	SM 2540, D-1997			3/18/2015	9:20 AM	EH
Metals, Total Recoverable										
Mercury	20.3	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	3/19/2015	3/19/2015	10:48 AM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Arsenic	14.4	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Cadmium	0.2	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Chromium	1.3	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Copper	1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Selenium	6.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Thallium	0.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Metals, Total	0.024	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015012505**

Sample Received Date:	3/18/2015	Sample Receipt Temperature (°C):	1.8
Sample Received Time:	9:00:00 AM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			3/25/2015	12:51 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			3/23/2015	12:40 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 09, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	5/27/2015
Permit Number:	KY0022250	Sample Collection Time:	12:39:00 PM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-06-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.09	S.U.			SM 4500-H+, B-2000			5/27/2015	12:39 PM	AR
Flow	0.1070	MGD			Calculated			5/27/2015	12:39 PM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150239**

Sample Received Date:	5/28/2015	Sample Receipt Temperature (°C):	2.4
Sample Received Time:	1:42:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	1348	mg/L	0.07	1	SM 2340, B-1997			6/18/2015	8:59 PM	EH
Suspended Solids, Total	10.5	mg/L		2.5	SM 2540, D-1997			6/1/2015	8:05 AM	JD
Metals, Total Recoverable										
Mercury	6.3	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	5/28/2015	6/15/2015	11:28 AM	JD
Antimony	1.6	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Arsenic	13.5	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Cadmium	0.9	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Selenium	9.0	µg/L	0.91	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Thallium	0.7	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	06/18/2015	6/18/2015	4:26 PM	EH
Metals, Total	0.026	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015024390**

Sample Received Date:	5/29/2015	Sample Receipt Temperature (°C):	1.8
Sample Received Time:	9:10:00 AM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			6/2/2015	3:31 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			6/18/2015	10:55 AM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, September 01, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/9/2015
Permit Number:	KY0022250	Sample Collection Time:	12:36:00 PM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.24	S.U.			SM 4500-H+, B-2000			7/9/2015	12:36 PM	AR
Flow	0.2000	MGD			Calculated			7/9/2015	12:36 PM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150341**

Sample Received Date:	7/13/2015	Sample Receipt Temperature (°C):	1.0
Sample Received Time:	11:22:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	1238	mg/L	0.07	1	SM 2340, B-1997			7/24/2015	4:53 AM	EH
Suspended Solids, Total	24.7	mg/L		2.5	SM 2540, D-1997			7/14/2015	1:00 PM	EH
Metals, Total Recoverable										
Mercury	6.4	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/14/2015	7/17/2015	12:04 PM	EH
Antimony	1.8	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Arsenic	10.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Cadmium	0.3	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Chromium	4.3	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Copper	1.9	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Selenium	10.1	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Thallium	0.6	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/20/2015	7/24/2015	4:53 AM	EH
Metals, Total	0.030	mg/L	0.007	0.0192						

Mineral Labs Inc Analyses — **Lab Identification #: 015031534**

Sample Received Date:	7/14/2015	Sample Receipt Temperature (°C):	1.0
Sample Received Time:	12:15:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			7/22/2015	4:05 PM	SRC
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			8/3/2015	12:15 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, December 09, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/30/2015
Permit Number:	KY0022250	Sample Collection Time:	10:07:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.16	S.U.			SM 4500-H+, B-2000			10/30/2015	10:07 AM	AR
Flow	0.0800	MGD			Calculated			10/30/2015	10:07 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150612**

Sample Received Date:	11/2/2015	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	8:10:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	1130	mg/L	0.07	1	SM 2340, B-1997			11/19/2015	2:28 PM	EH
Suspended Solids, Total	5.3	mg/L		2.5	SM 2540, D-1997			11/3/2015	10:02 AM	EH
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	11/2/2015	11/3/2015	10:31 AM	EH
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Arsenic	17.1	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Cadmium	0.4	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Chromium	1.2	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Selenium	9.2	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Thallium	0.4	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Metals, Total	0.028	mg/L	0.007	0.019						

Mineral Labs Inc Analyses — **Lab Identification #: 015050814**

Sample Received Date:	11/4/2015	Sample Receipt Temperature (°C):	2.3
Sample Received Time:	12:00:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			11/6/2015	1:24 PM	BWH
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			11/10/2015	9:15 AM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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Paducah, KY 270.444.6547

"Providing Tomorrow's Analytical Capabilitiies Today"

Certificate of Analysis
7031458

Eric Hamilton
East Kentucky Power Cooperative
4775 Lexington Road
Winchester KY, 40391

Customer ID: EA2481
Report Printed: 03/10/2017 12:41

Project Name:	H. L. Spurlock Station	Workorder:	7031458

Dear Eric Hamilton

Enclosed are the analytical results for samples received at one of our laboratories on 03/02/2017 13:40.

McCoy & McCoy Laboratories, Inc. and Environmental Certification Labs are commercial laboratories accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our websites at www.mccoylabs.com or www.eclabs.org for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

This certificate of analysis may not be reproduced without the written consent of McCoy & McCoy

ACCREDITED IN ACCORDANCE WITH nelac
#460210
Madisonville

PJLA Testing
Accreditation
#80812

ISO/IEC 17025:2005
ACCREDITED

Brett Davis

Brett Davis, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

McCOY & McCOY LABORATORIES, Inc.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
7031458-01	Outfall 008/	Water	03/02/2017 09:55	03/02/2017 13:40	Jeremy Hughes

ANALYTICAL RESULTS

Lab Sample ID: **7031458-01**
Description: **Outfall 008**

Sample Collection Date Time: 03/02/2017 09:55
Sample Received Date Time: 03/02/2017 13:40

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
ADMI Color at original pH	**12**		ADMI	1	1	2120 E-1997	03/03/2017 15:28	03/03/2017 15:42	TLB
ADMI Color at pH = 7.6	**8**		ADMI	1	1	2120 E-1997	03/03/2017 15:28	03/03/2017 15:56	TLB

Conventional Chemistry Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
BOD 5 Day	**2**	K1, U	mg/L	2		5210 B-2001	03/03/2017 08:46	03/08/2017 10:15	BLC

Microbiological Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Fecal Coliforms	**12**		MPN/100mL	1		Colilert®-18 (Fecal Coliforms)	03/02/2017 15:18	03/03/2017 10:37	JLA

McCOY & McCOY LABORATORIES, Inc.

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Louisville, KY 502.961.0001
Paducah, KY 270.444.6547

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Notes for work order 7031458

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.

K1	Concentration estimated. The sample dilutions set-up for the BOD or CBOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Quallifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
<	Less than

Certified Analyses included in this Report

Analyte	Certifications
5210 B-2001 in Water	
BOD 5 Day	KY Wastewater Lex (00066)
Colilert®-18 (Fecal Coliforms) in Water	
Fecal Coliforms	KY Wastewater Lex (00066)

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Louisville, KY 502.961.0001
Paducah, KY 270.444.6547

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Sample Acceptance Checklist for Work Order 7031458

Shipped By: Client

Temperature: 1.10° Celcius

Condition	
Custody seals present/intact?	☐
Were any containers received damaged?	☐
COC submitted and complete?	☑
COC agree with sample labels?	☑
All containers listed on COC received?	☑
Were all samples in appropriate containers?	☑
Did all samples have appropriate volumes?	☑
Were collection methods recorded on COC?	☐
Were flow units recorded on COC?	☐
Any headspace issues with volatile samples?	☐
Were all holding times acceptable?	☑
Were preserved samples within acceptable pH range?	☐
Were preserved samples within acceptable Cl2 range	☐

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

SHADED AREA FOR ANALYICAL LAB USE ONLY EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST Please Print Legibly

Station:	Sample Description / ID:	Collection Date:
East Kentucky Power Cooperative	Outfall 008	3-2-17
H.L. Spurlock Station	Matrix:	Collection Time:
1301 West Second Street	Water	0955
Maysville, KY 41056	Field pH (S.U.)	Temperature (°C)
	8.19	10°
Method of shipment (check one);	KPDES Permit #:	
CL ____ Inhouse ____ Contract ___	KY0022250	

SAMPLE ANALYSIS REQUESTED:	Analysis Method:	Line Item #	Container Type	Container Volume (mL)	# of Containers	Preservative
Fecal Coliform (MF)	SM 9222, D-97	1	Plastic	100	1	$Na_2S_2O_3$
Color	SM 2120, B-11	2	Plastic	250	1	< 6°c
BOD	SM 5210, B-11	3	Plastic	1000	1	< 6°c
Chemical Oxygen Demand	EPA 410.4 R2.0	4	Amber Glass	120	1	~~H_2SO_4~~
Total Organic Carbon	SM 5310C	5	Amber Glass	120	1	H_2SO_4
Ammonia, Nitrogen	A4500-NH3 G-97	6	Plastic	250	1	H_2SO_4
Nitrate-Nitrite,	EPA 353.2 R2.0	7	Amber Glass	250	1	H_2SO_4
Total Organic Nitrogen	Calculation	8				
Bromide	EPA 300.0 3/2/17	9	Plastic	250	1	< 6°c
Total Phosphorus	EPA 365.1 R2.0	10	Amber Glass	120	1	H_2SO_4
Titanium, Total	EPA 200.8 TV	11	Plastic	250	1	HNO_3
Cyanide, Total	EPA 335.4	12	Plastic	250	1	NaOH
Phenolics, Total	EPA 420.4	13	Amber Glass	250	1	H_2SO_4
Alpha, Total	EPA 900.0	14	Plastic	1000	1	HNO_3
Beta, Total	EPA 900.0	15	Plastic	1000	1	HNO_3
Radium, Total	EPA 904.0	16	Plastic	1000	1	HNO_3
Radium 226	EPA 903.1	17	Plastic	1000	1	HNO_3
Volatiles	EPA 624	20	Glass	40	3	HCl
Semi-Volatiles	EPA 625	21	Amber Glass	1000	2	< 6°c

	DATE	TIME		
Collected by: (Signature) Jason Hughes	3/2/17	1150	Received by: (Signature) Tim Yates	
Relinquished by: (Signature) Tim Yates	3/2/17	1340	Received by: (Signature) Dana Denson	3/2/17 1340
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	

Notes/Comments: All invoices must be identified with the EKPC Purchase Order # 0000113572 and the associated Line Item Number.

WO 7031458

EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, April 4, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/6/2016
Permit Number:	KY0022250	Sample Collection Time:	9:34:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	MWJ
Sample Matrix:	Wastewater	Sample Matrix:	Wastewater
Laboratory Certification ID:	KY# 08012	Samples Chlorinated:	No

EKPC - Central Laboratory Analyses — **Lab Identification #: 160429**

Sample Received Date:	7/7/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	2:10:00 PM	Sample Received By:	EH

Parameter	Result	Units	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
pH	8.15	S.U.		SM 4500-H+, B-2000			7/6/2016	9:34 AM	MWJ
Hardness, Total	582	mg/L	1	SM 2340, B-1997	EPA 200.8	7/18/2016	7/26/2016	3:47 PM	EH
Total Recoverable Metals									
Aluminium, Total	137	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Barium, Total	37	µg/L	5	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Boron, Total	4090	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Cobalt, Total	< 1.0	µg/L	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Iron, Total	137	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Magnesium	13040	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Manganese, Total	70.8	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Molybdenum, Total	36.9	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Friday, April 08, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	2/4/2016
Permit Number:	KY0022250	Sample Collection Time:	1:05:00 PM
Site ID:	**Outfall 008**	Sample Collected by:	JH
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.28	S.U.			SM 4500-H+, B-2000			2/4/2016	1:05 PM	JH
Flow	0.1300	MGD			Calculated			2/4/2016	1:05 PM	JH

EKPC - Central Laboratory Analyses — **Lab Identification #: 160096**

Sample Received Date:	2/8/2016	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	12:50:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	754	mg/L	0.07	1	SM 2340, B-1997			3/17/2016	5:03 PM	EH
Suspended Solids, Total	13.9	mg/L		2.5	SM 2540, D-1997			2/10/2016	1:53 PM	EH
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	2/8/2016	2/15/2016	1:50 PM	EH
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Arsenic	7.8	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Cadmium	0.4	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Chromium	2.2	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Selenium	7.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Thallium	0.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Metals, Total	0.018	mg/L	0.007							

ALS Group USA, Corp — **Lab Identification #: 1602427-02**

Sample Received Date:	2/9/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	2:08:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	2/12/2016	2/12/2016	9:59 AM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	2/10/2016	2/11/2016	9:48 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/29/2016
Permit Number:	KY0022250	Sample Collection Time:	9:45:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.00	S.U.			SM 4500-H+, B-2000			4/29/2016	9:45 AM	AR
Flow	0.1070	MGD			Calculated			4/29/2016	9:45 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 160285**

Sample Received Date:	5/3/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	7:10:00 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	600	mg/L	0.07	1	SM 2340, B-1997			5/26/2016	1:35 PM	EH
Suspended Solids, Total	10.4	mg/L		2.5	SM 2540, D-1997			5/5/2016	2:30 PM	EH
Metals, Total Recoverable										
Mercury	5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	5/3/2016	5/12/2016	12:55 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Arsenic	4.8	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Cadmium	0.2	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Selenium	3.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Thallium	0.5	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Metals, Total	0.009	mg/L	0.007							

ALS Group USA, Corp Analyses — **Lab Identification #: 1605289-01**

Sample Received Date:	5/5/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	1:28:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	5/9/2016	5/9/2016	14:37	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	5/7/2016	5/9/2016	11:16 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

Laboratory Supervisor

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, October 24, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/6/2016
Permit Number:	KY0022250	Sample Collection Time:	9:34:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	MWJ
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.15	S.U.			SM 4500-H+, B-2000			7/6/2016	9:34 AM	MWJ
Flow	0.1100	MGD			Calculated			7/6/2016	9:34 AM	MWJ

EKPC - Central Laboratory Analyses — **Lab Identification #: 160429**

Sample Received Date:	7/7/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	2:10:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	582	mg/L	0.07	1	SM 2340, B-1997			7/26/2016	3:47 PM	EH
Suspended Solids, Total	3.9	mg/L		2.5	SM 2540, D-1997			7/8/2016	1:05 PM	JD
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/7/2016	7/21/2016	12:05 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Arsenic	12.2	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Cadmium	0.4	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Selenium	2.8	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Thallium	0.9	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Metals, Total	0.016	mg/L	0.007							

ALS Group USA, Corp Analyses — **Lab Identification #: 1607870-01**

Sample Received Date:	7/15/2016	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	9:45:00 AM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	7/18/2016	7/18/2016	1:24 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	7/28/2016	7/29/2016	10:42 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, October 12, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	8/24/2016
Permit Number:	KY0022250	Sample Collection Time:	12:30:00 PM
Site ID:	**Outfall 008**	Sample Collected by:	JH
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.19	S.U.			SM 4500-H+, B-2000			8/24/2016	12:30 PM	JH
Flow	0.1200	MGD			Calculated			8/24/2016	12:30 PM	JH

EKPC - Central Laboratory Analyses — **Lab Identification #: 160582**

Sample Received Date:	8/29/2016	Sample Receipt Temperature (°C):	3.3
Sample Received Time:	12:30:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	797	mg/L	0.07	1	SM 2340, B-1997			9/7/2016	4:12 PM	JD
Suspended Solids, Total	5.4	mg/L		2.5	SM 2540, D-1997			8/31/2016	11:00 AM	JD
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	8/31/2016	9/2/2016	11:01 AM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Arsenic	2.3	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Cadmium	0.7	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Lead	1.1	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Selenium	2.4	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Thallium	1.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	9/6/2016	9/7/2016	4:12 PM	JD
Metals, Total	0.008	mg/L	0.007							

ALS Group USA, Corp Analyses — **Lab Identification #: 16081690-01**

Sample Received Date:	8/31/2016	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	9:30:00 AM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	9/6/2016	9/7/2016	3:38 PM	EE
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	9/1/2016	9/2/2016	9:23 AM	JJG

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, January 17, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	12/7/2016
Permit Number:	KY0022250	Sample Collection Time:	1:02:00 PM
Site ID:	**Outfall 008**	Sample Collected by:	JH
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.22	S.U.			SM 4500-H+, B-2000			12/7/2016	1:02 PM	JH
Flow	0.0540	MGD			Calculated			12/7/2016	1:02 PM	JH

EKPC - Central Laboratory Analyses — **Lab Identification #: 160912**

Sample Received Date:	12/12/2016	Sample Receipt Temperature (°C):	4.7
Sample Received Time:	1:50:00 PM	Sample Received By:	JE

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	924	mg/L	0.07	1	SM 2340, B-1997			1/5/2017	6:42 PM	JD
Suspended Solids, Total	< 2.5	mg/L		2.5	SM 2540, D-1997			12/14/2016	10:00 AM	JE
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	12/13/2016	12/21/2016	5:49 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/5/2017	8:09 PM	JD
Arsenic	5.9	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Cadmium	1.0	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/12/2017	12:34 AM	JD
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Selenium	4.9	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Thallium	1.5	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Zinc	20.7	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:41 PM	JD
Metals, Total	0.034	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 16122149-01**

Sample Received Date:	12/20/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	1:15:00 PM	Sample Received By:	JAS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	12/27/2016	12/27/2016	12:29 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	12/22/2016	12/22/2016	2:40 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, March 02, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/24/2017
Permit Number:	KY0022250	Sample Collection Time:	10:39:00 AM
Site ID:	**Outfall 008**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2017-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.21	S.U.			SM 4500-H+, B-2000			1/24/2017	10:39 AM	AR
Flow	0.2100	MGD			Calculated			1/24/2017	10:39 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 170102**

Sample Received Date:	1/27/2017	Sample Receipt Temperature (°C):	<6
Sample Received Time:	1:22:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	361	mg/L	0.07	1	SM 2340, B-1997			2/2/2017	7:05 AM	JD
Suspended Solids, Total	24.8	mg/L		2.5	SM 2540, D-1997			1/30/2017	9:27 AM	JE
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/27/2017	2/13/2017	12:33 PM	JE
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Arsenic	4.4	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:20 PM	JD
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Cadmium	0.2	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Chromium	1.3	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:20 PM	JD
Nickel	1.1	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Selenium	2.5	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:20 PM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Thallium	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:20 PM	JD
Zinc	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:36 PM	JD
Metals, Total	< 0.019	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 17011551-01**

Sample Received Date:	1/31/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	1:38:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	2/3/2017	2/3/2017	12:36 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	2/2/2017	2/3/2017	8:53 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140010

Sample Date/Time: Wednesday, January 22, 2014 17:35:47
Sample Description:
Batch ID:
Autosampler Position: 17
Sample Prep Volume (mL):
Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌈	**Be**	9.01	**0.10**	ug/L	3.29	460	50
⌊>	**Sc**	44.96		ug/L		852424	870254
⌈	**Ag**	106.91	**0.16**	ug/L	1.89	2670	695
|>	**In**	114.90		ug/L		1364713	1551011
⌊	**Sb**	120.90	**0.56**	ug/L	1.91	6488	361
⌈	**Tl**	204.97	**0.03**	ug/L	5.83	1426	410
|	**Pb**	207.98	**2.14**	ug/L	0.36	95412	859
⌊>	**Bi**	208.98		ug/L		985005	1079304
⌈	**Cr**	51.94	**1.42**	ug/L	6.84	1009	36
⌊>	**In-1**	114.90		ug/L		32460	38193
⌈	**Zn**	65.93	**10.36**	ug/L	2.17	1504	64
|	**As**	74.92	**1.05**	ug/L	9.75	66	3
|	**Se**	77.92	**0.49**	ug/L	43.69	6	4
|>	**Y**	88.91		ug/L		27554	29971
|	**Ni**	59.93	**3.84**	ug/L	1.75	2582	30
|	**Cu**	62.93	**2.61**	ug/L	2.34	4494	165
⌊	**Cd**	110.90	**0.05**	ug/L	13.46	20	7

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

Report Date: Wednesday, May 21, 2014

Certificate of Analysis

cation:	H.L. Spurlock Station	Sample Collection Date:	4/4/2014
Permit Number:	KY0022250	Sample Collection Time:	12:02:00 PM
Site ID:	**Outfall 009**	Sample Collected by:	AR
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-06-30		

EKPC - Central Laboratory Analyses — Lab Identification #: 140141

Sample Received Date:	4/7/2014	Sample Receipt Temperature (°C):	1.6
Sample Received Time:	11:35:00 AM	Sample Received By:	LR

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/11/2014	4/28/2014	2:13 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Arsenic, Total	< 1.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Chromium, Total	2.1	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Copper, Total	2.6	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Lead, Total	3.4	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Nickel, Total	4.2	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Selenium, Total	< 1.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Thallium, Total	< 0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	18:48	EH
Metals, Total	0.012	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	4/14/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	7:30:00 AM	Sample Received By:	JW

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			4/16/2014	15:03	SRC
Phenolics, Total	< 0.050	mL/L	0.006	0.05	E420.4			4/16/2014	16:11	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

I certify that the information provided on this certificate is complete and accurate to the best of my knowledge and belief.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, August 05, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/10/2014
Permit Number:	KY0022250	Sample Collection Time:	12:37:00 PM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-09-30		

EKPC - Central Laboratory Analyses **Lab Identification #: 140238**

Sample Received Date:	7/11/2014	Sample Receipt Temperature (°C):	2.2
Sample Received Time:	2:30:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/11/2014	7/17/2014	2:03 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Arsenic, Total	< 1.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Copper, Total	2.1	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Nickel, Total	1.5	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Selenium, Total	< 1.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Thallium, Total	0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	07-21-2014	08-04-2014	18:02	JD/EH
Metals, Total	0.004	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	7/17/2014	Sample Receipt Temperature (°C):	3.6
Sample Received Time:	12:09:00 PM	Sample Received By:	KK

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			7/23/2014	10:45	SRC
Phenolics, Total	< 0.05	mL/L	0.006	0.05	E420.4			7/24/2014	14:26	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, October 30, 2014

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/7/2014
Permit Number:	KY0022250	Sample Collection Time:	9:03:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	MW
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-12-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 140353**

Sample Received Date:	10/8/2014	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	1:02:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/8/2014	10/22/2014	1:04 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Arsenic, Total	< 1.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Chromium, Total	< 1.0	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Copper, Total	1.9	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Nickel, Total	1.9	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Selenium, Total	< 1.0	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Thallium, Total	< 0.1	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	10/16/2014	10/17/2014	1:28 PM	EH
Metals, Total	0.004	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	10/9/2014	Sample Receipt Temperature (°C):	2.2
Sample Received Time:	2:08:00 PM	Sample Received By:	KM

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			10/13/2014	11:00 AM	SRC
Phenolics, Total	< 0.050	mg/L	0.006	0.05	E420.4			10/16/2014	11:19 AM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

MLI # 014038634

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, February 10, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/19/2015
Permit Number:	KY0022250	Sample Collection Time:	9:00:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	MW
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-03-31	Laboratory Certification II	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 150029**

Sample Received Date: 1/26/2015 — Sample Receipt Temperature (°C): 3.2

Sample Received Time: 1:32:00 PM — Sample Received By: EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/26/2015	1/29/2015	1:06 PM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Arsenic, Total	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Cadmium, Total	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Copper, Total	1.1	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Lead, Total	1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Nickel, Total	2.0	µg/L	0.6967	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Thallium, Total	0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	01/28/2015	1/28/2015	11:39 AM	EH
Metals, Total	0.004	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015004671**

Sample Received Date: 1/28/2015 — Sample Receipt Temperature (°C): 1.4

Sample Received Time: 11:57:00 AM — Sample Received By: JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.0033	mg/L	0.002	0.0033	E335.4 R1.0-1993			1/29/2015	3:14 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			2/3/2015	11:41 AM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
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A Touchstone Energy Cooperative

EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, May 18, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/10/2015
Permit Number:	KY0022250	Sample Collection Time:	10:15:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
		Laboratory Certification II	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 150163**

Sample Received Date:	4/13/2015	Sample Receipt Temperature (°C):	1.6
Sample Received Time:	1:05:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Suspended Solids, Total	124.7	mg/L		2.5	SM 2540, D-1997			4/15/2015	8:00 AM	JD
Metals										
Low Level Mercury	5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/13/2015	5/1/2015	10:37 AM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Arsenic, Total	1.3	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Chromium, Total	1.7	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Copper, Total	3.6	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Lead, Total	3.7	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Nickel, Total	5.4	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Selenium, Total	1.6	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Zinc, Total	15.2	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	04/29/2015	04/30/2015	10:23 AM	EH
Metals, Total	0.033	mg/L	0.007							

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, September 01, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/2/2015
Permit Number:	KY0022250	Sample Collection Time:	7:15:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	AR
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-09-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 150324**

Sample Received Date:	7/6/2015	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	1:40:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/6/2015	7/6/2015	7:58 AM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Arsenic, Total	1.5	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Cadmium, Total	0.2	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Chromium, Total	1.2	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Copper, Total	4.2	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Lead, Total	5.9	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Nickel, Total	4.3	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Selenium, Total	1.1	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Zinc, Total	18.1	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	07/10/2015	07/10/2015	6:27 PM	EH
Metals, Total	0.037	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015030363**

Sample Received Date:	7/8/2015	Sample Receipt Temperature (°C):	0.4
Sample Received Time:	12:10:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.0033	E335.4 R1.0-1993			7/14/2015	9:47 AM	BWH
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			7/27/2015	4:36 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
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MINERAL LABS INC.

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Phone (606)349-6145
Fax (606)349-6102

Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S009-Intake**

Date/Time Collected: **7/02/2015 7:15:00**
Date/Time Received: **7/08/2015 12:10:00**
Lab Number: **015030363**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	Result	Units	MDL	MRL	Method	Date/Time Prepared	Date/Time/Tech Analyzed
Lab Sample ID: 015030363 001					**Description: Package 1** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		7/02/15 7:15 CLT
Total Recoverable Phenolics	< 0.05	mg/L	0.010	0.05	EPA 420.4 Rev 1.0-1993	H2SO4	7/27/15 16:36 SRC
Cyanide	< 0.003	mg/L	0.002	0.003	EPA 335.4 Rev 1.0-1993	NaOH	7/14/15 9:47 BWH
Sample Received at	0.4	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15007227@@

Lab Id
015030363

EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, November 04, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/9/2015
Permit Number:	KY0022250	Sample Collection Time:	6:44:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	MWJ
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-12-31	Laboratory Certification ID	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 150568**

Sample Received Date:	10/12/2015	Sample Receipt Temperature (°C):	3.1
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/12/2015	10/16/2015	9:18 AM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Arsenic, Total	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Copper, Total	2.3	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Nickel, Total	1.5	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Zinc, Total	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/15/2015	10/16/2015	1:07 AM	EH
Metals, Total	< 0.019	mg/L	0.007	0.019						

Mineral Labs Inc Analyses — **Lab Identification #: 015047460**

Sample Received Date:	10/16/2015	Sample Receipt Temperature (°C):	2.3
Sample Received Time:	2:00:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.0033	E335.4 R1.0-1993			10/22/2015	5:48 PM	BWH
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.4			10/22/2015	3:00 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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MINERAL LABS INC.

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Phone (606)349-6145
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Certificate of Analysis

East KY Power Cooperative
PO# EKPC-0000074266
PO Box 707
Winchester, KY 40392

Attention: **Larin Roberson**
Test Type:
Site ID: **S009-Intake**

Date/Time Collected: **10/09/2015 6:44:00**
Date/Time Received: **10/16/2015 14:00:00**
Lab Number: **015047460**

KPDES Number: **KY0022250**
Certification Id: **00072**

Parameter	*Result*	*Units*	*MDL*	*MRL*	*Method*	*Date/Time Prepared*	*Date/Time/Tech Analyzed*
Lab Sample ID: 015047460 001					**Description: Package 1** Sample Type: Grab		
Temperature Field	NDP	Degrees C			*		10/09/15 6:44 CLT
Total Recoverable Phenolics	< 0.05	mg/L	0.010	0.05	EPA 420.4 Rev 1.0-1993	H2SO4	10/22/15 15:00 SRC
Cyanide	< 3.3	mg/L	0.002	0.003	EPA 335.4 Rev 1.0-1993	NaOH	10/22/15 17:48 BWH
Sample Received at	2.3	Degrees C					

* Taken on Site
NDP= No Data Provided
CLT= Client
ND= Not Detected
The analyses above are reported to the best of my knowledge and belief.

Submitted By: Sharlonda Matthews

Sharlonda Matthews *Environmental Manager*

Batch
15011010@@

Lab Id
015047460

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 009
Collection Date: 2/8/2017 09:38 AM

Work Order: 1702432
Lab ID: 1702432-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **E200.8**			Prep: E200.8 / 2/13/17		Analyst: **RH**
Titanium	**0.014**		**0.00039**	**0.0050**	**mg/L**	1	2/14/2017 18:48
FECAL COLIFORM		Method: **A9222 D-97**					Analyst: **ARC**
Fecal Coliform	*32*		10	10	cfu/100ml	1	2/8/2017 15:50
BIOCHEMICAL OXYGEN DEMAND		Method: **A5210B-11**			Prep: A5210B / 2/9/17		Analyst: **JAS**
Biochemical Oxygen Demand	**48**		**2.0**	**2.0**	**mg/L**	1	2/14/2017 13:46
COLOR		Method: **A2120 B-11**					Analyst: **RLK**
Color	**15**		**1.0**	**1.0**	**p.c.u.**	1	2/10/2017 09:30
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **E625**			Prep: SW3510 / 2/10/17		Analyst: **RM**
1,2,4-Trichlorobenzene	U		0.41	5.0	µg/L	1	2/14/2017 04:09
1,2-Dichlorobenzene	U		0.39	5.0	µg/L	1	2/14/2017 04:09
1,2-Diphenylhydrazine	U		0.14	5.0	µg/L	1	2/14/2017 04:09
1,3-Dichlorobenzene	U		0.65	5.0	µg/L	1	2/14/2017 04:09
1,4-Dichlorobenzene	U		0.32	5.0	µg/L	1	2/14/2017 04:09
2,4,6-Trichlorophenol	U		0.25	5.0	µg/L	1	2/14/2017 04:09
2,4-Dichlorophenol	U		0.35	5.0	µg/L	1	2/14/2017 04:09
2,4-Dimethylphenol	U		0.36	5.0	µg/L	1	2/14/2017 04:09
2,4-Dinitrophenol	U		0.40	5.0	µg/L	1	2/14/2017 04:09
2,4-Dinitrotoluene	U		0.42	5.0	µg/L	1	2/14/2017 04:09
2,6-Dinitrotoluene	U		0.11	5.0	µg/L	1	2/14/2017 04:09
2-Chloronaphthalene	U		0.075	5.0	µg/L	1	2/14/2017 04:09
2-Chlorophenol	U		0.23	5.0	µg/L	1	2/14/2017 04:09
2-Nitrophenol	U		0.34	5.0	µg/L	1	2/14/2017 04:09
3,3'-Dichlorobenzidine	U		1.6	5.0	µg/L	1	2/14/2017 04:09
4,6-Dinitro-2-methylphenol	U		0.27	5.0	µg/L	1	2/14/2017 04:09
4-Bromophenyl phenyl ether	U		0.33	5.0	µg/L	1	2/14/2017 04:09
4-Chloro-3-methylphenol	U		0.26	5.0	µg/L	1	2/14/2017 04:09
4-Chlorophenyl phenyl ether	U		0.31	5.0	µg/L	1	2/14/2017 04:09
4-Nitrophenol	U		0.24	5.0	µg/L	1	2/14/2017 04:09
Acenaphthene	U		0.081	5.0	µg/L	1	2/14/2017 04:09
Acenaphthylene	U		0.075	5.0	µg/L	1	2/14/2017 04:09
Anthracene	U		0.028	5.0	µg/L	1	2/14/2017 04:09
Benzidine	U		2.0	10	µg/L	1	2/14/2017 04:09
Benzo(a)anthracene	U		0.022	5.0	µg/L	1	2/14/2017 04:09
Benzo(a)pyrene	U		0.044	5.0	µg/L	1	2/14/2017 04:09
Benzo(b)fluoranthene	U		0.051	5.0	µg/L	1	2/14/2017 04:09
Benzo(g,h,i)perylene	U		0.030	5.0	µg/L	1	2/14/2017 04:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 009
Collection Date: 2/8/2017 09:38 AM

Work Order: 1702432
Lab ID: 1702432-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(k)fluoranthene	U		0.048	5.0	µg/L	1	2/14/2017 04:09
Bis(2-chloroethoxy)methane	U		0.29	5.0	µg/L	1	2/14/2017 04:09
Bis(2-chloroisopropyl)ether	U		0.23	5.0	µg/L	1	2/14/2017 04:09
Bis(2-ethylhexyl)phthalate	U		0.40	5.0	µg/L	1	2/14/2017 04:09
Butyl benzyl phthalate	U		0.30	5.0	µg/L	1	2/14/2017 04:09
Chrysene	U		0.048	5.0	µg/L	1	2/14/2017 04:09
Dibenzo(a,h)anthracene	U		0.030	5.0	µg/L	1	2/14/2017 04:09
Diethyl phthalate	U		0.17	5.0	µg/L	1	2/14/2017 04:09
Di-n-butyl phthalate	U		0.21	5.0	µg/L	1	2/14/2017 04:09
Di-n-octyl phthalate	U		0.15	5.0	µg/L	1	2/14/2017 04:09
Fluoranthene	U		0.038	5.0	µg/L	1	2/14/2017 04:09
Fluorene	U		0.051	5.0	µg/L	1	2/14/2017 04:09
Hexachlorobenzene	U		0.44	5.0	µg/L	1	2/14/2017 04:09
Hexachlorobutadiene	U		0.28	5.0	µg/L	1	2/14/2017 04:09
Hexachlorocyclopentadiene	U		1.1	5.0	µg/L	1	2/14/2017 04:09
Hexachloroethane	U		0.21	5.0	µg/L	1	2/14/2017 04:09
Indeno(1,2,3-cd)pyrene	U		0.067	5.0	µg/L	1	2/14/2017 04:09
Isophorone	U		0.34	5.0	µg/L	1	2/14/2017 04:09
Naphthalene	U		0.067	5.0	µg/L	1	2/14/2017 04:09
Nitrobenzene	U		0.26	5.0	µg/L	1	2/14/2017 04:09
N-Nitrosodimethylamine	U		0.48	5.0	µg/L	1	2/14/2017 04:09
N-Nitrosodi-n-propylamine	U		0.35	5.0	µg/L	1	2/14/2017 04:09
N-Nitrosodiphenylamine	U		0.23	5.0	µg/L	1	2/14/2017 04:09
Pentachlorophenol	U		0.97	5.0	µg/L	1	2/14/2017 04:09
Phenanthrene	U		0.030	5.0	µg/L	1	2/14/2017 04:09
Phenol	U		0.21	5.0	µg/L	1	2/14/2017 04:09
Pyrene	U		0.036	5.0	µg/L	1	2/14/2017 04:09
Surr: 2,4,6-Tribromophenol	*69.3*			*38-115*	*%REC*	1	2/14/2017 04:09
Surr: 2-Fluorobiphenyl	*63.3*			*32-100*	*%REC*	1	2/14/2017 04:09
Surr: 2-Fluorophenol	*31.2*			*22-59*	*%REC*	1	2/14/2017 04:09
Surr: 4-Terphenyl-d14	*91.2*			*23-112*	*%REC*	1	2/14/2017 04:09
Surr: Nitrobenzene-d5	*48.5*			*31-93*	*%REC*	1	2/14/2017 04:09
Surr: Phenol-d6	*19.4*			*13-36*	*%REC*	1	2/14/2017 04:09
VOLATILE ORGANIC COMPOUNDS		Method:**E624**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	2/15/2017 19:05
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	2/15/2017 19:05
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	2/15/2017 19:05
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	2/15/2017 19:05
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	2/15/2017 19:05

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 009
Collection Date: 2/8/2017 09:38 AM

Work Order: 1702432
Lab ID: 1702432-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	2/15/2017 19:05
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	2/15/2017 19:05
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	2/15/2017 19:05
Acrolein	U		2.5	10	µg/L	1	2/15/2017 19:05
Acrylonitrile	U		0.18	1.0	µg/L	1	2/15/2017 19:05
Benzene	U		0.30	1.0	µg/L	1	2/15/2017 19:05
Bromodichloromethane	U		0.23	1.0	µg/L	1	2/15/2017 19:05
Bromoform	U		0.77	1.0	µg/L	1	2/15/2017 19:05
Bromomethane	U		0.38	1.0	µg/L	1	2/15/2017 19:05
Carbon tetrachloride	U		0.31	1.0	µg/L	1	2/15/2017 19:05
Chlorobenzene	U		0.27	1.0	µg/L	1	2/15/2017 19:05
Chloroethane	U		0.29	1.0	µg/L	1	2/15/2017 19:05
Chloroform	U		0.26	1.0	µg/L	1	2/15/2017 19:05
Chloromethane	U		0.17	1.0	µg/L	1	2/15/2017 19:05
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	2/15/2017 19:05
Dibromochloromethane	U		0.38	1.0	µg/L	1	2/15/2017 19:05
Ethylbenzene	U		0.40	1.0	µg/L	1	2/15/2017 19:05
Methylene chloride	U		0.56	5.0	µg/L	1	2/15/2017 19:05
Tetrachloroethene	U		0.27	1.0	µg/L	1	2/15/2017 19:05
Toluene	U		0.37	1.0	µg/L	1	2/15/2017 19:05
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	2/15/2017 19:05
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	2/15/2017 19:05
Vinyl chloride	U		0.20	1.0	µg/L	1	2/15/2017 19:05
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	2/15/2017 19:05
Surr: 1,2-Dichloroethane-d4	*99.3*			*75-120*	*%REC*	1	2/15/2017 19:05
Surr: 4-Bromofluorobenzene	*97.8*			*80-110*	*%REC*	1	2/15/2017 19:05
Surr: Dibromofluoromethane	*94.5*			*85-115*	*%REC*	1	2/15/2017 19:05
Surr: Toluene-d8	*97.8*			*85-110*	*%REC*	1	2/15/2017 19:05
CYANIDE, TOTAL		Method: **E335.4 R1.0**			Prep: SW9012B / 2/10/17		Analyst: **JB**
Cyanide, Total	U		0.0020	0.0050	mg/L	1	2/10/2017 12:15
CHEMICAL OXYGEN DEMAND		Method: **E410.4 R2.0**					Analyst: **JJG**
Chemical Oxygen Demand	**14**		**3.0**	**5.0**	**mg/L**	1	2/10/2017 12:50
ANIONS BY ION CHROMATOGRAPHY		Method: **E300.0**					Analyst: **ED**
Bromide	U		0.56	1.0	mg/L	5	2/14/2017 16:43
AMMONIA AS NITROGEN		Method: **A4500-NH3 G-97**					Analyst: **JJG**
Ammonia as Nitrogen	**0.044**		**0.0050**	**0.020**	**mg NH3-N/L**	1	2/9/2017 11:48
NITROGEN, NITRATE-NITRITE		Method: **E353.2 R2.0**					Analyst: **JJG**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *17-Feb-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 009
Collection Date: 2/8/2017 09:38 AM

Work Order: 1702432
Lab ID: 1702432-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Nitrogen, Nitrate-Nitrite	**1.1**		**0.013**	**0.020**	**mg/L**	1	2/14/2017 12:58
NITROGEN, TOTAL ORGANIC			Method:**CALCULATION**				Analyst: **JB**
Nitrogen, Total Organic	*<1*		1.0	1.0	mg/L	1	2/13/2017 12:15
PHOSPHORUS, TOTAL			Method:**E365.1 R2.0**				Analyst: **JJG**
Phosphorus, Total	**0.068**		**0.024**	**0.050**	**mg/L**	1	2/10/2017 08:36
PHENOLICS, TOTAL			Method:**E420.4**		Prep: E420.x / 2/13/17		Analyst: **JB**
Phenolics, Total	**0.48**		**0.050**	**0.25**	**mg/L**	25	2/15/2017 13:46
NITROGEN, TOTAL KJELDAHL			Method:**A4500-NH3 G-97**		Prep: A4500-N B / 2/9/17		Analyst: **JB**
Nitrogen, Total Kjeldahl	U		0.48	1.0	mg/L	1	2/13/2017 10:52
ORGANIC CARBON, TOTAL			Method:**A5310C-00**				Analyst: **JJG**
Organic Carbon, Total	**2.8**		**0.039**	**0.50**	**mg/L**	1	2/10/2017 13:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Feb-17

Client: East Kentucky Power Cooperative

Work Order: 1702432

Project: H.L. Spurlock Station

QC BATCH REPORT

Batch ID: **98121** Instrument ID **ICPMS2** Method: **E200.8**

MBLK Sample ID: **MBLK-98121-98121** Units: **mg/L** Analysis Date: **2/14/2017 06:01 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286975** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	U	0.00039	0.0050								

LCS Sample ID: **LCS-98121-98121** Units: **mg/L** Analysis Date: **2/14/2017 06:06 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286976** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1002	0.00039	0.0050	0.1	0	100	85-115	0			

MS Sample ID: **1702400-01KMS** Units: **mg/L** Analysis Date: **2/14/2017 06:16 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286978** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1065	0.00039	0.0050	0.1	0.005593	101	70-130	0			

MS Sample ID: **1702474-04AMS** Units: **mg/L** Analysis Date: **2/14/2017 08:54 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287007** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1016	0.00039	0.0050	0.1	0.0001534	101	70-130	0			

MSD Sample ID: **1702400-01KMSD** Units: **mg/L** Analysis Date: **2/14/2017 06:37 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4286982** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1077	0.00039	0.0050	0.1	0.005593	102	70-130	0.1065	1.12	20	

MSD Sample ID: **1702474-04AMSD** Units: **mg/L** Analysis Date: **2/14/2017 08:59 PM**

Client ID: Run ID: **ICPMS2_170214A** SeqNo: **4287008** Prep Date: **2/13/2017** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Titanium	0.1008	0.00039	0.0050	0.1	0.0001534	101	70-130	0.1016	0.791	20	

The following samples were analyzed in this batch: 1702432-01J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, February 18, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/25/2016
Permit Number:	KY0022250	Sample Collection Time:	12:27:00 PM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-03-31	Laboratory Certification ID	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160063**

Sample Received Date:	2/1/2016	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	12:20:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	2/1/2016	2/15/2016	1:50 PM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Arsenic, Total	1.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Chromium, Total	1.8	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Copper, Total	3.4	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Lead, Total	2.7	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Nickel, Total	4.1	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Selenium, Total	2.8	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Zinc, Total	16.2	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	02/04/2016	02/05/2016	11:45 AM	EH
Metals, Total	0.033	mg/L	0.007							

Fouser Environmental Services — **Lab Identification #: 948614-01**

Sample Received Date:	2/3/2016	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	2:10:00 PM	Sample Received By:	LE

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.01	mg/L	0.002	0.01	Lachat QC CN-1			2/5/2016	NDP	CT
Phenolics, Total	< 0.05	mg/L	0.006	0.05	E420.1			2/5/2016	NDP	AW

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

* NDP = No Data Provided

Approved by:

Chemist

QA/QC Chemist

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P.O. Box 707, Winchester,
Kentucky 40392-0707

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FES Fouser Environmental Services

165 Camden Avenue Versailles, KY 40383 Phone: 859-873-6211 Fax: 859-873-3715 Email: lab@fouser.com

Laboratory / Consulting

Certificate of Analysis

East Kentucky Power
Mr. Mike Hughes
P.O. Box 707
Winchester, KY 40391

Project Spurlock Station
Entered By Lynn Ellis
Date Reported 2/10/2016
Date Received 2/3/2016
Date Approved 2/10/2016

Test	Method	Result	Qualifiers	Units	PQL	Date	Initials
948614-01	**160063 (S-009)**		**1/25/16 12:27**				
Cyanide, Total	Lachat QC CN-1	<0.01		mg/L	0.01	2/5/2016	CT
Phenols, Total	EPA 420.1	<0.05		mg/L	0.05	2/5/2016	AW

Approved By Ray Fouser

Ray Fouser, P.E.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/16/2016
Permit Number:	KY0022250	Sample Collection Time:	11:05:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	MWJ
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160239**

Sample Received Date: 4/18/2016 — Sample Receipt Temperature (°C): 0.8

Sample Received Time: 12:30:00 PM — Sample Received By: JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	**	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	**	**	**	**
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Arsenic, Total	1.5	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Chromium, Total	1.8	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Copper, Total	4.8	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Lead, Total	5.5	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Nickel, Total	3.9	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Thallium, Total	0.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Zinc, Total	17.4	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	4/28/2016	4/28/2016	11:37 PM	EH
Metals, Total	0.035	mg/L	0.007							

Fouser Environmental Services — **Lab Identification #: 950397-01**

Sample Received Date: 4/22/2016 — Sample Receipt Temperature (°C): 2.0

Sample Received Time: 9:24:00 AM — Sample Received By: LE

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	0.01	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	NDP	5/2/2016	NDP	AW
Phenolics, Total	< 0.05	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	NDP	5/17/2016	NDP	AW

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

** Mercury sample containers were received unpreserved. Samples were received after 48 hours from collection. Sampling team notified. Corrective Action: Samples to be recollected for mercury and preserved within 48 hours.

Approved by:

Chemist

Laboratory Supervisor

4775 Lexington Road 40391
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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/21/2016
Permit Number:	KY0022250	Sample Collection Time:	1:49:00 PM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 160262**

Sample Received Date:	4/25/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	12:15:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Metals, Total Recoverable										
Mercury	< 10	ng/L	0.8	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/25/2016	5/12/2016	12:44 PM	JD

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

Laboratory Supervisor

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Laboratory / Consulting

Certificate of Analysis

East Kentucky Power
Mr. Eric Hamilton
P.O. Box 707
Winchester, KY 40391

Project Spurlock Station
Entered By Lynn Ellis
Date Reported 5/23/2016
Date Received 4/22/2016
Date Approved 5/18/2016

Test	Method	Result	Qualifiers	Units	PQL	Date	Initials
950398-01	**S-009 River Intake**		**4/16/16 11:05**				
Cyanide, Total	Lachat QC CN-1	0.01		mg/L	0.01	5/2/2016	AW
Phenols, Total	EPA 420.1	<0.05		mg/L	0.05	5/17/2016	AW

Approved By Ray Fouser

Ray Fouser, P.E.

EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, October 12, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/12/2016
Permit Number:	KY0022250	Sample Collection Time:	7:40:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	AR
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160456**

Sample Received Date: 7/15/2016 — Sample Receipt Temperature (°C): 1.0

Sample Received Time: 9:25:00 AM — Sample Received By: EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/21/2016	8/5/2016	12:11 PM	EH
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Arsenic, Total	1.7	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Copper, Total	2.2	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Lead, Total	1.4	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Nickel, Total	2.5	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Thallium, Total	0.7	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Zinc, Total	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/27/2016	6:49 AM	EH
Metals, Total	0.009	mg/L	0.007							

Fouser Environmental Services — **Lab Identification #: 1607882-01**

Sample Received Date: 7/15/2016 — Sample Receipt Temperature (°C): < 6

Sample Received Time: 2:55:00 PM — Sample Received By: JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	7/18/2016	7/19/2016	1:23 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	7/28/2016	7/29/2016	10:42 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

4775 Lexington Rd. 40391
P.O. Box 707, Winchester,
Kentucky 40392-0707

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, January 18, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/6/2016
Permit Number:	KY0022250	Sample Collection Time:	12:43:00 PM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-12-31	Laboratory Certification II	KY# 08012

EKPC - Central Laboratory Analyses — **Lab Identification #: 160685**

Sample Received Date:	10/10/2016	Sample Receipt Temperature (°C):	0.3
Sample Received Time:	2:30:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	10/10/2016	10/25/2016	10:20 AM	JD
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:28 PM	JD
Arsenic, Total	1.1	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Cadmium, Total	< 0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Chromium, Total	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Copper, Total	1.8	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Lead, Total	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Nickel, Total	2.5	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Selenium, Total	1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:28 PM	JD
Thallium, Total	1.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	11/7/2016	12:28 PM	JD
Zinc, Total	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	10/11/2016	10/12/2016	5:54 PM	JD
Metals, Total	< 0.019	mg/L	0.007	0.019						

ALS Group USA, Corp — **Lab Identification #: 16101076-01**

Sample Received Date:	10/17/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	2:50:00 PM	Sample Received By:	JAS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	10/19/2016	10/19/2016	2:42 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, April 4, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/13/2017
Permit Number:	KY0022250	Sample Collection Time:	10:13:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Sample Matrix:	Wastewater	Sample Matrix:	Wastewater
Laboratory Certification ID:	KY# 08012	Samples Chlorinated:	No

EKPC - Central Laboratory Analyses — Lab Identification #: 170115

Sample Received Date:	1/16/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	1:17:00 PM	Sample Received By:	JD

Parameter	Result	Units	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
Total Recoverable Metals									
Aluminium, Total	1420	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:23 PM	JD
Barium, Total	61	µg/L	5	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Boron, Total	39	µg/L	5	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	6:07 AM	JD
Cobalt, Total	2.0	µg/L	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Iron, Total	2292	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Magnesium	41857	µg/L	1000	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/2/2017	6:07 AM	JD
Manganese, Total	247.0	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD
Molybdenum, Total	60.6	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	2:55 PM	JD

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist II

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, March 02, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/13/2017
Permit Number:	KY0022250	Sample Collection Time:	10:13:00 AM
Site ID:	**Outfall 009**	Sample Collected by:	JH
Extended Site ID:	**Intake**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2017-03-31	Laboratory Certification ID:	KY# 08012

EKPC - Central Laboratory Analyses **Lab Identification #: 170036**

Sample Received Date: 1/16/2017 — Sample Receipt Temperature (°C): < 6

Sample Received Time: 1:17:00 PM — Sample Received By: JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Metals										
Low Level Mercury	<5.0	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/17/2017	1/17/2017	12:31 PM	JE
Antimony, Total	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Arsenic, Total	1.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Beryllium, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/10/2017	12:22 PM	JD
Cadmium, Total	0.1	µg/L	0.10	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Chromium, Total	1.9	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Copper, Total	3.2	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Lead, Total	3.2	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Nickel, Total	4.6	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Selenium, Total	< 1.0	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Silver, Total	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Thallium, Total	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Zinc, Total	17.2	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	3:24 PM	JD
Metals, Total	0.032	mg/L	0.007	0.019						

ALS Group USA, Corp **Lab Identification #: 17011097-01**

Sample Received Date: 1/23/2017 — Sample Receipt Temperature (°C): < 6

Sample Received Time: 3:25:00 PM — Sample Received By: JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	1/25/2017	1/25/2017	12:50 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	1/25/2017	1/26/2017	9:44 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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East Kentucky Power Cooperative

Central Lab

EPA Method: 200.8 rev. 5.4

Analyst: Eric Hamilton

Instrument: Perkin Elmer NexION 300X ICP/MS

Serial # 81XN1120802

Sample ID: 140008

Sample Date/Time: Wednesday, January 22, 2014 17:20:41
Sample Description:
Batch ID:
Autosampler Position: 15
Sample Prep Volume (mL):
Diluted to Volume (mL):

Results (Mean Data)

IS	Analyte	Mass	Conc.	Units	RSD	Intensity	Blank Intensity
⌈	**Be**	9.01	**0.06**	ug/L	3.02	265	50
⌊>	**Sc**	44.96		ug/L		821628	870254
⌈	**Ag**	106.91	**0.04**	ug/L	5.89	1053	695
|>	**In**	114.90		ug/L		1259390	1551011
⌊	**Sb**	120.90	**2.58**	ug/L	4.85	26304	361
⌈	**Tl**	204.97	**0.07**	ug/L	3.23	2763	410
|	**Pb**	207.98	**0.56**	ug/L	3.59	22767	859
⌊>	**Bl**	208.98		ug/L		879961	1079304
⌈	**Cr**	51.94	**2.29**	ug/L	5.05	1429	36
⌊>	**In-1**	114.90		ug/L		28755	38193
⌈	**Zn**	65.93	**5.19**	ug/L	2.48	701	64
|	**As**	74.92	**1.62**	ug/L	6.49	89	3
|	**Se**	77.92	**2.38**	ug/L	8.53	14	4
|>	**Y**	88.91		ug/L		24713	29971
|	**Ni**	59.93	**1.22**	ug/L	2.42	755	30
|	**Cu**	62.93	**1.21**	ug/L	4.93	1945	165
⌊	**Cd**	110.90	**0.05**	ug/L	23.68	18	7

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

Report Date: Wednesday, May 21, 2014

Certificate of Analysis

.tation:	H.L. Spurlock Station	Sample Collection Date:	4/9/2014
Permit Number:	KY0022250	Sample Collection Time:	12:00:00 PM
Site ID:	**Outfall 011**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2014-06-30		

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
pH	8.01	S.U.			SM 4500-H+, B-2000			4/9/2014	12:00	AR
Flow	0.0490	MGD			Calculated			4/9/2014	12:00	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 140149**

Sample Received Date:	4/10/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	10:45:00 AM	Sample Received By:	LR

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	842	mg/L	0.02	1	SM 2340, B-1997			5/1/2014	17:24	EH
Suspended Solids, Total	6.6	mg/L		2.5	SM 2540, D-1997			4/15/2014	8:10	EH
Metals										
Low Level Mercury	< 5.0	ng/L	0.3	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	4/10/2014	4/28/2014	2:21 PM	EH
Antimony, Total	< 1.0	µg/L	0.19	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Arsenic, Total	< 1.0	µg/L	0.22	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Beryllium, Total	< 1.0	µg/L	0.02	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Cadmium, Total	< 0.1	µg/L	0.06	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Chromium, Total	6.2	µg/L	0.06	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Copper, Total	< 1.0	µg/L	0.07	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Lead, Total	< 1.0	µg/L	0.04	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Nickel, Total	< 1.0	µg/L	0.08	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Selenium, Total	10.8	µg/L	0.33	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Silver, Total	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Thallium, Total	0.2	µg/L	0.02	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Zinc, Total	< 10.0	µg/L	0.60	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA NPDES	4/14/2014	4/23/2014	19:07	EH
Metals, Total	0.017	mg/L	0.002							

Mineral Labs Inc Analyses

Sample Received Date:	4/14/2014	Sample Receipt Temperature (°C):	1.4
Sample Received Time:	7:30:00 AM	Sample Received By:	JW

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 R1.0-1993			4/16/2014	15:03	SRC
Phenolics, Total	< 0.05	mL/L	0.006	0.05	E420.4			4/16/2014	16:11	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

E Z Hamilton
Chemist

Tim Yates
QA/QC Chemist

To the best of the information provided in this certificate and complete and accurate to the best of my knowledge and ability.

Spurlock Station - Outfall 011 (Coal Combustion Wastes Landfill)

Facility:

EAST KY POWER COOPERATIVE SPURLOCK STATION

Feature: 011 - External Outfall Discharge: 1 - Coal Combustion Wastes Landfill

Report Dates & Status

Monitoring Period: From: 07/01/2014 To: 09/30/2014

Principal Executive Officer

First Name: Braden Last Name: Condley

Title: Env. Permitting and Compliance Sup. Telephone: 859-745-9639

No Data Indicator (NODI)

Form NODI:

Parameter			Quantity or Loading			Quality or Concentration				# Ex.	Freq. of Analysis	Smpl. Type
Code	Name		Value 1	Value 2	Units	Value 1	Value 2	Value 3	Units			
00400	pH	Smpl.				8.15		8.15	S.U.	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req				>= 6 Minimum		<= 9 Maximum	Standard Units		Quarterly	GRAB
00530	Solids, Total Suspended	Smpl.					13.8	13.8	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					<= 35 30 Day Average	<= 70 Daily Maximum	Milligrams per Liter		Quarterly	GRAB
00900	Hardness, Total [as $CaCO_3$]	Smpl.					964	964	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Milligrams per Liter		Quarterly	GRAB
50050	Flow, in Conduit or thru treatment plant	Smpl.	0.0060	0.0060	MGD					0	01/90	IN
1 - Effluent Gross												
Season: 0		Req	Req Mon 30 Day Average	Req Mon Daily Maximum	Million Gallons per Day						Quarterly	INSTAN
78240	Metals, Total	Smpl.					0.006	0.006	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Milligrams per Liter		Quarterly	GRAB
79777	Precipitation Volume	Smpl.					0.30	0.61	in/d	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Inches per Day		Quarterly	GRAB

Comments:

10/10/20142:32 PM

Spurlock Station - Outfall 011 (Coal Combustion Wastes Landfill)

Facility:

EAST KY POWER COOPERATIVE SPURLOCK STATION

Feature: 011 - External Outfall Discharge: 1 - Coal Combustion Wastes Landfill

Report Dates & Status

Monitoring Period: From: 10/01/2014 To: 12/31/2014

Principal Executive Officer

First Name: Braden Last Name: Condley

Title: Env. Permitting and Compliance Sup. Telephone: 859-745-9639

No Data Indicator (NODI)

Form NODI:

Parameter			Quantity or Loading			Quality or Concentration				# Ex.	Freq. of Analysis	Smpl. Type
Code	Name		Value 1	Value 2	Units	Value 1	Value 2	Value 3	Units			
00400	pH	Smpl.				7.94		7.94	S.U.	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req				>= 6 Minimum		<= 9 Maximum	Standard Units		Quarterly	GRAB
00530	Solids, Total Suspended	Smpl.					8.0	8.0	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					<= 35 30 Day Average	<= 70 Daily Maximum	Milligrams per Liter		Quarterly	GRAB
00900	Hardness, Total [as $CaCO_3$]	Smpl.					1003	1003	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Milligrams per Liter		Quarterly	GRAB
50050	Flow, in Conduit or thru treatment plant	Smpl.	0.0100	0.0100	MGD					0	01/90	IN
1 - Effluent Gross												
Season: 0		Req	Req Mon 30 Day Average	Req Mon Daily Maximum	Million Gallons per Day						Quarterly	INSTAN
78240	Metals, Total	Smpl.					0.008	0.008	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Milligrams per Liter		Quarterly	GRAB
79777	Precipitation Volume	Smpl.					0.15	1.44	in/d	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Inches per Day		Quarterly	GRAB

Comments:

12/26/20143:30 PM

EAST KENTUCKY POWER COOPERATIVE

Report Date: Monday, March 30, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	3/12/2015
Permit Number:	KY0022250	Sample Collection Time:	9:31:00 AM
Site ID:	**Outfall 011**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.01	S.U.			SM 4500-H+, B-2000			3/12/2015	9:31 AM	AR
Flow	0.0250	MGD			Calculated			3/12/2015	9:31 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150090**

Sample Received Date:	3/16/2015	Sample Receipt Temperature (°C):	3.1
Sample Received Time:	1:20:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	535	mg/L	0.07	1	SM 2340, B-1997			3/20/2015	11:17 AM	EH
Suspended Solids, Total	6.7	mg/L		2.5	SM 2540, D-1997			3/18/2015	9:20 AM	EH
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	3/19/2015	3/19/2015	10:48 AM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Arsenic	2.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Chromium	7.3	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Copper	1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Selenium	12.4	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Thallium	0.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	03/20/2015	03/20/2015	11:17 AM	EH
Metals, Total	0.023	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015012506**

Sample Received Date:	3/18/2015	Sample Receipt Temperature (°C):	1.8
Sample Received Time:	9:00:00 AM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			3/25/2015	12:51 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			3/23/2015	12:40 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 09, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	5/27/2015
Permit Number:	KY0022250	Sample Collection Time:	12:12:00 PM
Site ID:	**Outfall 011**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-06-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	7.82	S.U.			SM 4500-H+, B-2000			5/27/2015	12:12 PM	AR
Flow	0.0120	MGD			Calculated			5/27/2015	12:12 PM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150243**

Sample Received Date:	5/28/2015	Sample Receipt Temperature (°C):	2.4
Sample Received Time:	1:42:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	906	mg/L	0.07	1	SM 2340, B-1997			6/18/2015	10:07 PM	EH
Suspended Solids, Total	3.1	mg/L		2.5	SM 2540, D-1997			6/1/2015	8:05 AM	JD
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.59	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	5/28/2015	6/15/2015	11:28 AM	JD
Antimony	1.2	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Arsenic	1.7	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Nickel	1.2	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Selenium	5.1	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/19/2015	9:25 PM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Thallium	0.3	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	6/18/2015	6/18/2015	4:26 PM	EH
Metals, Total	0.009	mg/L	0.007							

Mineral Labs Inc Analyses — **Lab Identification #: 015024390**

Sample Received Date:	5/29/2015	Sample Receipt Temperature (°C):	1.8
Sample Received Time:	9:10:00 AM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			6/2/2015	3:31 PM	MBA
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			6/19/2015	1:54 PM	KNK

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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Spurlock Station - Outfall 011 (Coal Combustion Wastes Landfill)

Facility:

EAST KY POWER COOPERATIVE SPURLOCK STATION

Feature: 011 - External Outfall Discharge: 1 - Coal Combustion Wastes Landfill

Report Dates & Status

Monitoring Period: From: 09/01/2015 To: 09/30/2015

Principal Executive Officer

First Name: Braden Last Name: Condley

Title: Environmental Compliance Manager Telephone: 859-745-9639

No Data Indicator (NODI)

Form NODI:

Parameter			Quantity or Loading			Quality or Concentration				# Ex.	Freq. of Analysis	Smpl. Type
Code	Name		Value 1	Value 2	Units	Value 1	Value 2	Value 3	Units			
00400	pH	Smpl.				8.01		8.01	S.U.	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req				>= 6 Minimum		<= 9 Maximum	Standard Units		Quarterly	GRAB
00530	Solids, Total Suspended	Smpl.					9	9	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					<= 35 30 Day Average	<= 70 Daily Maximum	Milligrams per Liter		Quarterly	GRAB
00900	Hardness, Total [as $CaCO_3$]	Smpl.					529	529	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Milligrams per Liter		Quarterly	GRAB
50050	Flow, in Conduit or thru treatment plant	Smpl.	0.0200	0.0200	MGD					0	01/90	IN
1 - Effluent Gross												
Season: 0		Req	Req Mon 30 Day Average	Req Mon Daily Maximum	Million Gallons per Day						Quarterly	INSTAN
78240	Metals, Total	Smpl.					< 0.0192	< 0.0192	mg/L	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Milligrams per Liter		Quarterly	GRAB
79777	Precipitation Volume	Smpl.					0.05	0.62	in/d	0	01/90	GR
1 - Effluent Gross												
Season: 0		Req					Req Mon 30 Day Average	Req Mon Daily Maximum	Inches per Day		Quarterly	GRAB

Comments:

EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, December 09, 2015

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	10/30/2015
Permit Number:	KY0022250	Sample Collection Time:	9:40:00 AM
Site ID:	**Outfall 011**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2015-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	7.94	S.U.			SM 4500-H+, B-2000			10/30/2015	9:40 AM	AR
Flow	0.0120	MGD			Calculated			10/30/2015	9:40 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 150614**

Sample Received Date:	11/2/2015	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	8:10:00 AM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	1087	mg/L	0.07	1	SM 2340, B-1997			11/19/2015	2:28 PM	EH
Suspended Solids, Total	10.2	mg/L		2.5	SM 2540, D-1997			11/3/2015	10:02 AM	EH
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	11/2/2015	11/3/2015	10:31 AM	EH
Antimony	1.4	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Arsenic	2.6	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Chromium	1.6	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Copper	1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Selenium	7.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Thallium	0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Zinc	10.4	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	11/16/2015	11/19/2015	2:28 PM	EH
Metals, Total	0.025	mg/L	0.007	0.019						

Mineral Labs Inc Analyses — **Lab Identification #: 015050813**

Sample Received Date:	11/4/2015	Sample Receipt Temperature (°C):	2.3
Sample Received Time:	12:00:00 PM	Sample Received By:	JL

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	0.003	mg/L	0.002	0.003	E335.4 Rev 1.0-1993			11/6/2015	1:24 PM	BWH
Phenolics, Total	< 0.05	mg/L	0.010	0.05	E420.4 Rev 1.0-1993			11/9/2015	12:22 PM	SRC

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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ALS Group, USA

Date: *14-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 011
Collection Date: 3/2/2017 09:40 AM

Work Order: 1703224
Lab ID: 1703224-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **E200.8**			Prep: E200.8 / 3/8/17		Analyst: **RH**
Titanium	**0.015**		**0.00039**	**0.0050**	**mg/L**	1	3/8/2017 22:22
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **E625**			Prep: SW3510 / 3/7/17		Analyst: **RS**
1,2,4-Trichlorobenzene	U		0.43	5.2	µg/L	1	3/8/2017 01:11
1,2-Dichlorobenzene	U		0.41	5.2	µg/L	1	3/8/2017 01:11
1,2-Diphenylhydrazine	U		0.15	5.2	µg/L	1	3/8/2017 01:11
1,3-Dichlorobenzene	U		0.68	5.2	µg/L	1	3/8/2017 01:11
1,4-Dichlorobenzene	U		0.34	5.2	µg/L	1	3/8/2017 01:11
2,4,6-Trichlorophenol	U		0.26	5.2	µg/L	1	3/8/2017 01:11
2,4-Dichlorophenol	U		0.37	5.2	µg/L	1	3/8/2017 01:11
2,4-Dimethylphenol	U		0.38	5.2	µg/L	1	3/8/2017 01:11
2,4-Dinitrophenol	U		0.42	5.2	µg/L	1	3/8/2017 01:11
2,4-Dinitrotoluene	U		0.44	5.2	µg/L	1	3/8/2017 01:11
2,6-Dinitrotoluene	U		0.12	5.2	µg/L	1	3/8/2017 01:11
2-Chloronaphthalene	U		0.079	5.2	µg/L	1	3/8/2017 01:11
2-Chlorophenol	U		0.24	5.2	µg/L	1	3/8/2017 01:11
2-Nitrophenol	U		0.36	5.2	µg/L	1	3/8/2017 01:11
3,3'-Dichlorobenzidine	U		1.7	5.2	µg/L	1	3/8/2017 01:11
4,6-Dinitro-2-methylphenol	U		0.28	5.2	µg/L	1	3/8/2017 01:11
4-Bromophenyl phenyl ether	U		0.35	5.2	µg/L	1	3/8/2017 01:11
4-Chloro-3-methylphenol	U		0.27	5.2	µg/L	1	3/8/2017 01:11
4-Chlorophenyl phenyl ether	U		0.32	5.2	µg/L	1	3/8/2017 01:11
4-Nitrophenol	U		0.25	5.2	µg/L	1	3/8/2017 01:11
Acenaphthene	U		0.085	5.2	µg/L	1	3/8/2017 01:11
Acenaphthylene	U		0.079	5.2	µg/L	1	3/8/2017 01:11
Anthracene	U		0.029	5.2	µg/L	1	3/8/2017 01:11
Benzidine	U		2.1	10	µg/L	1	3/8/2017 01:11
Benzo(a)anthracene	U		0.023	5.2	µg/L	1	3/8/2017 01:11
Benzo(a)pyrene	U		0.046	5.2	µg/L	1	3/8/2017 01:11
Benzo(b)fluoranthene	U		0.053	5.2	µg/L	1	3/8/2017 01:11
Benzo(g,h,i)perylene	U		0.031	5.2	µg/L	1	3/8/2017 01:11
Benzo(k)fluoranthene	U		0.050	5.2	µg/L	1	3/8/2017 01:11
Bis(2-chloroethoxy)methane	U		0.30	5.2	µg/L	1	3/8/2017 01:11
Bis(2-chloroisopropyl)ether	U		0.24	5.2	µg/L	1	3/8/2017 01:11
Bis(2-ethylhexyl)phthalate	U		0.42	5.2	µg/L	1	3/8/2017 01:11
Butyl benzyl phthalate	U		0.31	5.2	µg/L	1	3/8/2017 01:11
Chrysene	U		0.050	5.2	µg/L	1	3/8/2017 01:11
Dibenzo(a,h)anthracene	U		0.031	5.2	µg/L	1	3/8/2017 01:11
Diethyl phthalate	U		0.18	5.2	µg/L	1	3/8/2017 01:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 011
Collection Date: 3/2/2017 09:40 AM

Work Order: 1703224
Lab ID: 1703224-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Di-n-butyl phthalate	U		0.22	5.2	µg/L	1	3/8/2017 01:11
Di-n-octyl phthalate	U		0.16	5.2	µg/L	1	3/8/2017 01:11
Fluoranthene	U		0.040	5.2	µg/L	1	3/8/2017 01:11
Fluorene	U		0.053	5.2	µg/L	1	3/8/2017 01:11
Hexachlorobenzene	U		0.46	5.2	µg/L	1	3/8/2017 01:11
Hexachlorobutadiene	U		0.29	5.2	µg/L	1	3/8/2017 01:11
Hexachlorocyclopentadiene	U		1.1	5.2	µg/L	1	3/8/2017 01:11
Hexachloroethane	U		0.22	5.2	µg/L	1	3/8/2017 01:11
Indeno(1,2,3-cd)pyrene	U		0.070	5.2	µg/L	1	3/8/2017 01:11
Isophorone	U		0.36	5.2	µg/L	1	3/8/2017 01:11
Naphthalene	U		0.070	5.2	µg/L	1	3/8/2017 01:11
Nitrobenzene	U		0.27	5.2	µg/L	1	3/8/2017 01:11
N-Nitrosodimethylamine	U		0.50	5.2	µg/L	1	3/8/2017 01:11
N-Nitrosodi-n-propylamine	U		0.37	5.2	µg/L	1	3/8/2017 01:11
N-Nitrosodiphenylamine	U		0.24	5.2	µg/L	1	3/8/2017 01:11
Pentachlorophenol	U		1.0	5.2	µg/L	1	3/8/2017 01:11
Phenanthrene	U		0.031	5.2	µg/L	1	3/8/2017 01:11
Phenol	U		0.22	5.2	µg/L	1	3/8/2017 01:11
Pyrene	U		0.038	5.2	µg/L	1	3/8/2017 01:11
Surr: 2,4,6-Tribromophenol	*74.7*			*38-115*	*%REC*	1	3/8/2017 01:11
Surr: 2-Fluorobiphenyl	*71.6*			*32-100*	*%REC*	1	3/8/2017 01:11
Surr: 2-Fluorophenol	*46.9*			*22-59*	*%REC*	1	3/8/2017 01:11
Surr: 4-Terphenyl-d14	*86.8*			*23-112*	*%REC*	1	3/8/2017 01:11
Surr: Nitrobenzene-d5	*69.3*			*31-93*	*%REC*	1	3/8/2017 01:11
Surr: Phenol-d6	*25.9*			*13-36*	*%REC*	1	3/8/2017 01:11
VOLATILE ORGANIC COMPOUNDS		Method: **E624**					Analyst: **BG**
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	3/9/2017 13:50
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	3/9/2017 13:50
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	3/9/2017 13:50
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	3/9/2017 13:50
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	3/9/2017 13:50
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	3/9/2017 13:50
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	3/9/2017 13:50
2-Chloroethyl vinyl ether	U		10	10	µg/L	1	3/9/2017 13:50
Acrolein	U		2.5	10	µg/L	1	3/9/2017 13:50
Acrylonitrile	U		0.18	1.0	µg/L	1	3/9/2017 13:50
Benzene	U		0.30	1.0	µg/L	1	3/9/2017 13:50
Bromodichloromethane	U		0.23	1.0	µg/L	1	3/9/2017 13:50
Bromoform	U		0.77	1.0	µg/L	1	3/9/2017 13:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 011
Collection Date: 3/2/2017 09:40 AM

Work Order: 1703224
Lab ID: 1703224-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromomethane	U		0.38	1.0	µg/L	1	3/9/2017 13:50
Carbon tetrachloride	U		0.31	1.0	µg/L	1	3/9/2017 13:50
Chlorobenzene	U		0.27	1.0	µg/L	1	3/9/2017 13:50
Chloroethane	U		0.29	1.0	µg/L	1	3/9/2017 13:50
Chloroform	U		0.26	1.0	µg/L	1	3/9/2017 13:50
Chloromethane	U		0.17	1.0	µg/L	1	3/9/2017 13:50
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	3/9/2017 13:50
Dibromochloromethane	U		0.38	1.0	µg/L	1	3/9/2017 13:50
Ethylbenzene	U		0.40	1.0	µg/L	1	3/9/2017 13:50
Methylene chloride	U		0.56	5.0	µg/L	1	3/9/2017 13:50
Tetrachloroethene	U		0.27	1.0	µg/L	1	3/9/2017 13:50
Toluene	U		0.37	1.0	µg/L	1	3/9/2017 13:50
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	3/9/2017 13:50
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	3/9/2017 13:50
Vinyl chloride	U		0.20	1.0	µg/L	1	3/9/2017 13:50
1,3-Dichloropropene, Total	U		1.2	2.0	µg/L	1	3/9/2017 13:50
Surr: 1,2-Dichloroethane-d4	*104*			*75-120*	*%REC*	1	3/9/2017 13:50
Surr: 4-Bromofluorobenzene	*96.1*			*80-110*	*%REC*	1	3/9/2017 13:50
Surr: Dibromofluoromethane	*101*			*85-115*	*%REC*	1	3/9/2017 13:50
Surr: Toluene-d8	*97.0*			*85-110*	*%REC*	1	3/9/2017 13:50
CYANIDE, TOTAL		Method:	**E335.4 R1.0**		Prep: SW9012B / 3/6/17		Analyst: **JB**
Cyanide, Total	U		0.0020	0.0050	mg/L	1	3/6/2017 12:41
CHEMICAL OXYGEN DEMAND		Method:	**E410.4 R2.0**				Analyst: **KF**
Chemical Oxygen Demand	**9.1**		**3.0**	**5.0**	**mg/L**	1	3/9/2017 10:42
ANIONS BY ION CHROMATOGRAPHY		Method:	**E300.0**				Analyst: **EE**
Bromide	U		0.56	1.0	mg/L	5	3/10/2017 14:13
AMMONIA AS NITROGEN		Method:	**A4500-NH3 G-97**				Analyst: **JJG**
Ammonia as Nitrogen	U		0.0050	0.020	mg NH3-N/L	1	3/7/2017 12:41
NITROGEN, NITRATE-NITRITE		Method:	**E353.2 R2.0**				Analyst: **JJG**
Nitrogen, Nitrate-Nitrite	**0.33**		**0.013**	**0.020**	**mg/L**	1	3/6/2017 09:09
NITROGEN, TOTAL ORGANIC		Method:	**CALCULATION**				Analyst: **JB**
Nitrogen, Total Organic	*<1*		1.0	1.0	mg/L	1	3/14/2017 13:20
PHOSPHORUS, TOTAL		Method:	**E365.1 R2.0**				Analyst: **JJG**
Phosphorus, Total	**0.10**		**0.024**	**0.050**	**mg/L**	1	3/7/2017 09:59
PHENOLICS, TOTAL		Method:	**E420.4**		Prep: E420.x / 3/7/17		Analyst: **JB**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *14-Mar-17*

Client: East Kentucky Power Cooperative
Project: H.L. Spurlock Station
Sample ID: Outfall 011
Collection Date: 3/2/2017 09:40 AM

Work Order: 1703224
Lab ID: 1703224-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Phenolics, Total	U		0.0020	0.010	mg/L	1	3/8/2017 09:29
NITROGEN, TOTAL KJELDAHL		Method: **A4500-NH3 G-97**			Prep: A4500-N B / 3/13/17		Analyst: **JB**
Nitrogen, Total Kjeldahl	U		0.48	1.0	mg/L	1	3/14/2017 12:33
ORGANIC CARBON, TOTAL		Method: **A5310C-00**					Analyst: **JJG**
Organic Carbon, Total	**3.4**		**0.039**	**0.50**	**mg/L**	1	3/9/2017 11:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

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Paducah, KY 270.444.6547

"Providing Tomorrow's Analytical Capabilitiies Today"

Certificate of Analysis
7031457

Eric Hamilton
East Kentucky Power Cooperative
4775 Lexington Road
Winchester KY, 40391

Customer ID: EA2481
Report Printed: 03/10/2017 12:41

Project Name:	H. L. Spurlock Station	Workorder:	7031457

Dear Eric Hamilton

Enclosed are the analytical results for samples received at one of our laboratories on 03/02/2017 13:38.

McCoy & McCoy Laboratories, Inc. and Environmental Certification Labs are commercial laboratories accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please visit our websites at www.mccoylabs.com or www.eclabs.org for a listing of the NELAP accreditations and Scope of Work, as well as, links to other scientific organizations.

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#460210
Madisonville

PJLA Testing
Accreditation
#80812

ISO/IEC 17025:2005 ACCREDITED

Brett Davis

Brett Davis, Project Manager

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

McCOY & McCOY LABORATORIES, Inc.

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SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
7031457-01	Outfall 011/	Water	03/02/2017 09:40	03/02/2017 13:38	Jeremy Hughes

ANALYTICAL RESULTS

Lab Sample ID: **7031457-01**
Description: **Outfall 011**

Sample Collection Date Time: 03/02/2017 09:40
Sample Received Date Time: 03/02/2017 13:38

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
ADMI Color at original pH	**14**		ADMI	1	1	2120 E-1997	03/03/2017 15:28	03/03/2017 15:40	TLB
ADMI Color at pH = 7.6	**14**		ADMI	1	1	2120 E-1997	03/03/2017 15:28	03/03/2017 15:54	TLB

Conventional Chemistry Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
BOD 5 Day	**2**	K1, U	mg/L	2		5210 B-2001	03/03/2017 08:46	03/08/2017 10:15	BLC

Microbiological Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Fecal Coliforms	**326**		MPN/100mL	1		Colilert®-18 (Fecal Coliforms)	03/02/2017 15:18	03/03/2017 10:37	JLA

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Notes for work order 7031457

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.

K1	Concentration estimated. The sample dilutions set-up for the BOD or CBOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Quallifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
<	Less than

Certified Analyses included in this Report

Analyte	Certifications
5210 B-2001 in Water	
BOD 5 Day	KY Wastewater Lex (00066)
Colilert®-18 (Fecal Coliforms) in Water	
Fecal Coliforms	KY Wastewater Lex (00066)

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Sample Acceptance Checklist for Work Order 7031457

Shipped By: Client

Temperature: 1.10° Celcius

Condition	
Custody seals present/intact?	☐
Were any containers received damaged?	☐
COC submitted and complete?	☑
COC agree with sample labels?	☑
All containers listed on COC received?	☑
Were all samples in appropriate containers?	☑
Did all samples have appropriate volumes?	☑
Were collection methods recorded on COC?	☐
Were flow units recorded on COC?	☐
Any headspace issues with volatile samples?	☐
Were all holding times acceptable?	☑
Were preserved samples within acceptable pH range?	☐
Were preserved samples within acceptable Cl2 range	☐

EAST KENTUCKY POWER COOPERATIVE CHAIN OF CUSTODY

Temp 1.1

SHADED AREA FOR ANALYICAL LAB USE ONLY — EKPC CHAIN OF CUSTODY and ANALYTICAL REQUEST — Please Print Legibly

Station:	Sample Description / ID:	Collection Date:
East Kentucky Power Cooperative	Outfall 011	3-2-17
H.L. Spurlock Station	Matrix:	Collection Time:
1301 West Second Street	Water	0940
Maysville, KY 41056	Field pH (S.U.)	Temperature (°C)
	8.16	7
Method of shipment (check one);	KPDES Permit #:	
CL ✓ Inhouse ___ Contract ___	KY0022250	

SAMPLE ANALYSIS REQUESTED:	Analysis Method:	Line Item #	Container Type	Container Volume (mL)	# of Containers	Preservative
Fecal Coliform (MF)	SM 9222, D-97	1	Plastic	100	1	$Na_2S_2O_3$
Color	SM 2120, B-11	2	Plastic	250	1	< 6°c
BOD	SM 5210, B-11	3	Plastic	1000	1	< 6°c
Chemical Oxygen Demand	EPA 410.4 R2.0	4	Amber Glass	120	1	H_2SO_4
Total Organic Carbon	SM 5310C	5	Amber Glass	120	1	H_2SO_4
Ammonia, Nitrogen	A4500-NH3 G-97	6	Plastic	250	1	H_2SO_4
Nitrate-Nitrite,	EPA 353.2 R2.0	7	Amber Glass	250	1	H_2SO_4
Total Organic Nitrogen	Calculation	8				
Bromide	EPA 300.0	9	Plastic	250	1	< 6°c
Total Phosphorus	EPA 365.1 R2.0	10	Amber Glass	120	1	H_2SO_4
Titanium, Total	EPA 200.8	11	Plastic	250	1	HNO_3
Cyanide, Total	EPA 335.4	12	Plastic	250	1	NaOH
Phenolics, Total	EPA 420.4	13	Amber Glass	250	1	H_2SO_4
Volatiles***	EPA 624	20	Glass	40	3	HCl
Semi-Volatiles	EPA 625	21	Amber Glass	1000	2	< 6°c

3/2/17 TY

	DATE	TIME		
Collected by: (Signature)	3/2/17	1150	Received by: (Signature)	
Relinquished by: (Signature)	3/2/17	1338	Received by: (Signature)	3/2/17 1340
Relinquished by: (Signature)			Received by: (Signature)	
Relinquished by: (Signature)			Received by: (Signature)	
Relinquished by: (Signature)			Received by: (Signature)	

Notes/Comments: All invoices must be identified with the EKPC Purchase Order # 0000113572 and the associated Line Item Number.

*** = Trip Blank Included

WO 70314S7

EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, April 4, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/6/2016
Permit Number:	KY0022250	Sample Collection Time:	9:50:00 AM
Site ID:	**Outfall 011**	Sample Collected by:	MWJ
Sample Matrix:	Wastewater	Sample Matrix:	Wastewater
Laboratory Certification ID:	KY# 08012	Samples Chlorinated:	No

EKPC - Central Laboratory Analyses **Lab Identification #: 160431**

Sample Received Date:	7/7/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	2:10:00 PM	Sample Received By:	EH

Parameter	Result	Units	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst:
pH	8.87	S.U.		SM 4500-H+, B-2000			7/6/2016	9:50 AM	MWJ
Hardness, Total	377	mg/L	1	SM 2340, B-1997	EPA 200.8	7/18/2016	7/26/2016	3:47 PM	EH
Total Recoverable Metals									
Aluminium, Total	173	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Barium, Total	49	µg/L	5	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Boron, Total	183	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Cobalt, Total	< 1.0	µg/L	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Iron, Total	201	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Magnesium	4962	µg/L	50	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Manganese, Total	112.4	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Molybdenum, Total	49.2	µg/L	5.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Friday, April 08, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	2/4/2016
Permit Number:	KY0022250	Sample Collection Time:	12:33:00 PM
Site ID:	**Outfall 011**	Sample Collected by:	JH
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.18	S.U.			SM 4500-H+, B-2000			2/4/2016	12:33 PM	JH
Flow	0.0600	MGD			Calculated			2/4/2016	12:33 PM	JH

EKPC - Central Laboratory Analyses — **Lab Identification #: 160098**

Sample Received Date:	2/8/2016	Sample Receipt Temperature (°C):	3.0
Sample Received Time:	12:50:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	474	mg/L	0.07	1	SM 2340, B-1997			3/17/2016	5:03 PM	EH
Suspended Solids, Total	10.1	mg/L		2.5	SM 2540, D-1997			2/10/2016	1:53 PM	EH
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	2/8/2016	2/15/2016	1:50 PM	EH
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Arsenic	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Chromium	1.7	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Selenium	3.4	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Thallium	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/12/2016	3/17/2016	5:03 PM	EH
Metals, Total	0.005	mg/L	0.007							

ALS Group USA, Corp — **Lab Identification #: 1602427-03**

Sample Received Date:	2/9/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	2:08:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	2/12/2016	2/12/2016	9:59 AM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	2/10/2016	2/11/2016	9:48 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, July 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	4/29/2016
Permit Number:	KY0022250	Sample Collection Time:	10:02:00 AM
Site ID:	**Outfall 011**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-06-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.08	S.U.			SM 4500-H+, B-2000			4/29/2016	10:02 AM	AR
Flow	0.0120	MGD			Calculated			4/29/2016	10:02 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 160287**

Sample Received Date:	5/3/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	7:10:00 AM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	427	mg/L	0.07	1	SM 2340, B-1997			5/26/2016	1:35 PM	EH
Suspended Solids, Total	12.8	mg/L		2.5	SM 2540, D-1997			5/5/2016	2:30 PM	EH
Metals, Total Recoverable										
Mercury	< 5	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	5/3/2016	5/12/2016	12:58 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Arsenic	< 1.0	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Chromium	1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Selenium	2.6	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Thallium	0.4	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	5/23/2016	5/26/2016	1:35 PM	EH
Metals, Total	0.004	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 1605289-02**

Sample Received Date:	5/5/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	1:28:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	5/9/2016	5/9/2016	14:37	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	5/7/2016	5/9/2016	11:16 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

Laboratory Supervisor

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Wednesday, September 21, 2016

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	7/6/2016
Permit Number:	KY0022250	Sample Collection Time:	9:50:00 AM
Site ID:	**Outfall 011**	Sample Collected by:	MWJ
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-09-30	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.87	S.U.			SM 4500-H+, B-2000			7/6/2016	9:50 AM	MWJ
Flow	0.0060	MGD			Calculated			7/6/2016	9:50 AM	MWJ

EKPC - Central Laboratory Analyses — **Lab Identification #: 160431**

Sample Received Date:	7/7/2016	Sample Receipt Temperature (°C):	0.8
Sample Received Time:	2:10:00 PM	Sample Received By:	EH

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	377	mg/L	0.07	1	SM 2340, B-1997			7/26/2016	3:47 PM	EH
Suspended Solids, Total	6.9	mg/L		2.5	SM 2540, D-1997			7/8/2016	1:05 PM	JD
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	7/7/2016	7/21/2016	12:08 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Arsenic	1.8	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Selenium	1.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Thallium	0.7	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Zinc	< 10.0	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	7/18/2016	7/26/2016	3:47 PM	EH
Metals, Total	0.004	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 1607872-01**

Sample Received Date:	7/15/2016	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	2:55:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	7/18/2016	7/18/2016	1:24 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	7/28/2016	7/29/2016	10:42 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Tuesday, January 17, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	12/7/2016
Permit Number:	KY0022250	Sample Collection Time:	12:00:00 PM
Site ID:	**Outfall 011**	Sample Collected by:	JH
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2016-12-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.12	S.U.			SM 4500-H+, B-2000			12/7/2016	12:00 PM	JH
Flow	0.0123	MGD			Calculated			12/7/2016	12:00 PM	JH

EKPC - Central Laboratory Analyses — **Lab Identification #: 160910**

Sample Received Date:	12/12/2016	Sample Receipt Temperature (°C):	4.7
Sample Received Time:	1:50:00 PM	Sample Received By:	JE

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	758	mg/L	0.07	1	SM 2340, B-1997			1/5/2017	7:01 PM	JD
Suspended Solids, Total	5.7	mg/L		2.5	SM 2540, D-1997			12/14/2016	10:00 AM	JE
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	0.82	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	12/13/2016	12/21/2016	5:34 PM	JD
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/5/2017	7:59 PM	JD
Arsenic	1.3	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	1/12/2017	12:24 AM	JD
Chromium	< 1.0	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Copper	< 1.0	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Nickel	< 1.0	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Selenium	3.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Thallium	1.2	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Zinc	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	12/22/2016	12/30/2016	6:32 PM	JD
Metals, Total	< 0.019	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 16121147-01**

Sample Received Date:	12/20/2016	Sample Receipt Temperature (°C):	< 6.0
Sample Received Time:	1:15:00 PM	Sample Received By:	JAS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	12/27/2016	12/27/2016	12:29 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	12/22/2016	12/22/2016	2:40 PM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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EAST KENTUCKY POWER COOPERATIVE

Report Date: Thursday, March 02, 2017

Certificate of Analysis

Station:	H.L. Spurlock Station	Sample Collection Date:	1/24/2017
Permit Number:	KY0022250	Sample Collection Time:	10:13:00 AM
Site ID:	**Outfall 011**	Sample Collected by:	AR
Extended Site ID:	**Landfill Runoff**	Sample Matrix:	Wastewater
Sample Type:	Compliance Monitoring	Samples Chlorinated:	No
Monitoring Period End Date:	2017-03-31	Laboratory Certification ID:	KY# 08012

Field Analyses	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
pH	8.16	S.U.			SM 4500-H+, B-2000			1/24/2017	10:13 AM	AR
Flow	0.0490	MGD			Calculated			1/24/2017	10:13 AM	AR

EKPC - Central Laboratory Analyses — **Lab Identification #: 170104**

Sample Received Date:	1/27/2017	Sample Receipt Temperature (°C):	<6
Sample Received Time:	1:22:00 PM	Sample Received By:	JD

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Hardness, Total	446	mg/L	0.07	1	SM 2340, B-1997			2/2/2017	7:15 AM	JD
Suspended Solids, Total	25.0	mg/L		2.5	SM 2540, D-1997			1/30/2017	9:27 AM	JE
Metals, Total Recoverable										
Mercury	< 5.0	ng/L	1.11	5.0	EPA 245.7 Rev 2.0 (2005)	EPA 245.7	1/27/2017	2/13/2017	12:39 PM	JE
Antimony	< 1.0	µg/L	0.32	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Arsenic	1.4	µg/L	0.69	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:30 PM	JD
Beryllium	< 1.0	µg/L	0.20	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Cadmium	< 0.1	µg/L	0.096	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Chromium	4.4	µg/L	0.83	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Copper	1.5	µg/L	0.70	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Lead	< 1.0	µg/L	0.53	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:30 PM	JD
Nickel	1.4	µg/L	0.7	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Selenium	5.7	µg/L	0.91	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:30 PM	JD
Silver	< 1.0	µg/L	0.18	1.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Thallium	< 0.1	µg/L	0.01	0.1	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/1/2017	5:30 PM	JD
Zinc	< 10	µg/L	1.48	10.0	EPA 200.8, Rev. 5.4 (1994)	EPA 3015A	2/1/2017	2/7/2017	4:46 PM	JD
Metals, Total	< 0.019	mg/L	0.007	0.019						

ALS Group USA, Corp Analyses — **Lab Identification #: 17011552-01**

Sample Received Date:	1/31/2017	Sample Receipt Temperature (°C):	< 6
Sample Received Time:	1:38:00 PM	Sample Received By:	JS

Parameter	Result	Units	MDL	Report Limit	Analysis Method	Preparation Method:	Preparation Date:	Date Analyzed:	Time Analyzed:	Analyst
Cyanide, Total	< 0.005	mg/L	0.003	0.005	EPA 335.4 Rev 1.0-1993	SW9012B	2/3/2017	2/3/2017	12:36 PM	JB
Phenolics, Total	< 0.010	mg/L	0.007	0.010	EPA 420.4 Rev 1.0-1993	E420.x	2/2/2017	2/3/2017	8:53 AM	JB

Comments / Notes:

Sample results are compliant with East Kentucky Power Cooperatives Quality Assurance program. Quality Control sample results achieved laboratory specification.

Approved by:

Chemist

QA/QC Chemist

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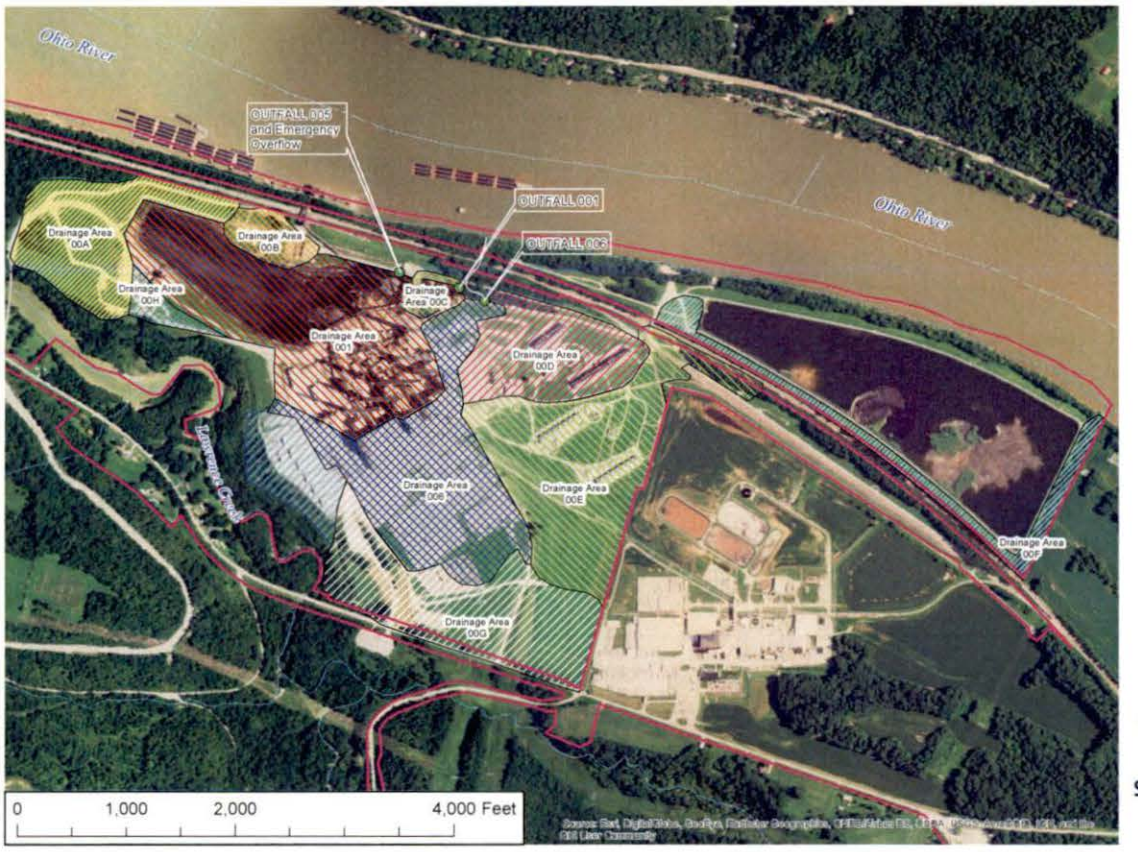


H.L. Spurlock Power Station

- Streams and Creeks
- Property Boundary
- Drainage Area 00A
- Drainage Area 00B
- Drainage Area 001
- Drainage Area 00C
- Drainage Area 006
- Drainage Area 00D
- Drainage Area 00E
- Drainage Area 00F
- Drainage Area 00G
- Drainage Area 00H
- Sheet Flow

N

Notes
1. CONFIDENTIAL ATTORNEY WORK PRODUCT

Stanley Consultants INC.

March 2017

Figure 1: Plant Drainage Area Map

EAST KENTUCKY POWER COOPERATIVE, INC.
H.L. Spurlock Power Station
1301 West Second Street
Maysville, KY 41056

REV.	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
1		Revised Drainage Areas per Facility Updates	3/15/17	AB	LR	TM
0		Issued for Permit Submittal	1/20/17	AB	BC	TM

EAST KENTUCKY POWER COOPERATIVE

27173.01.00

REV 1

H.L. Spurlock Power Station

- Property Boundary
- Stream or Creek
- Drainage Area 00I
- Drainage Area 00J
- Drainage Area 00K
- Drainage Area 00L
- Drainage Area 008
- Drainage Area 011

Notes:
1. CONFIDENTIAL ATTORNEY WORK PRODUCT

Stanley Consultants INC.

January 2017

Figure 2: Landfill Drainage Area Map

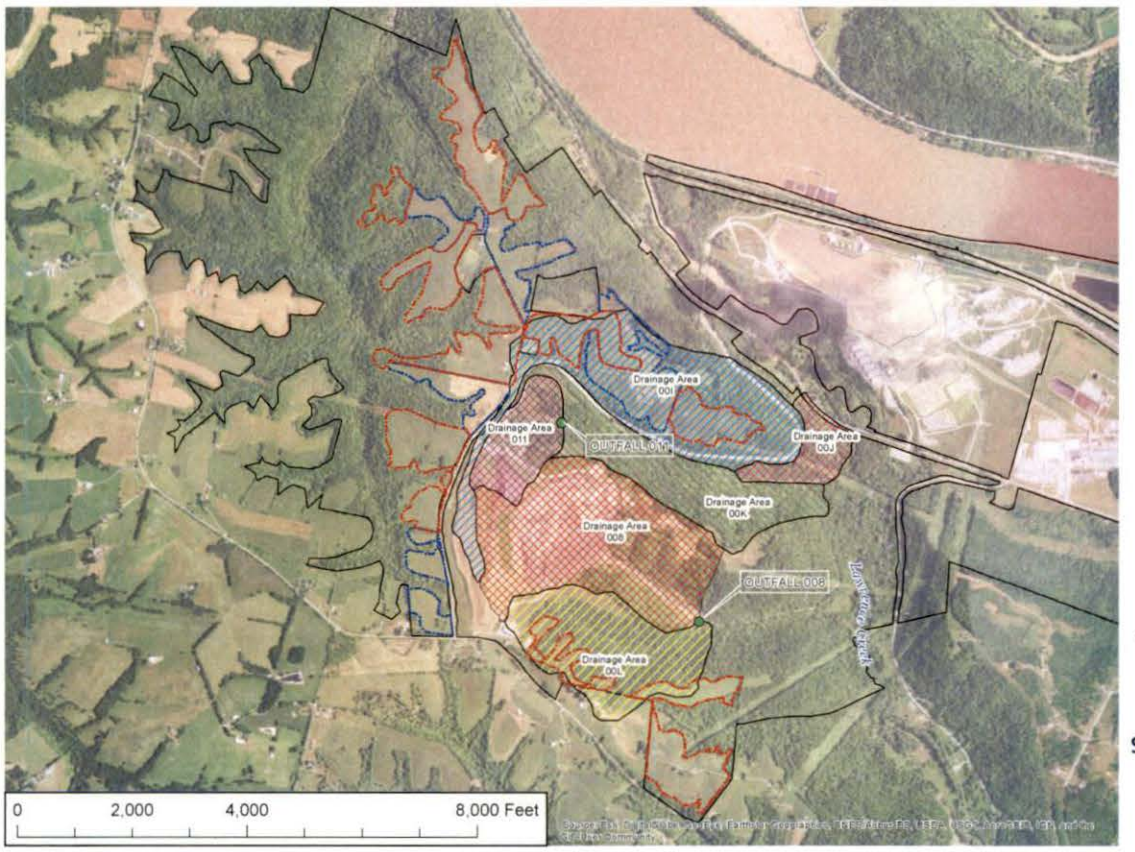
EAST KENTUCKY POWER COOPERATIVE, INC.
H.L. Spurlock Power Station
1301 West Second Street
Maysville, KY 41056

REV.	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Issued for Permit Submittal	1/20/17	AB	BC	TM

EAST KENTUCKY POWER COOPERATIVE

27173.01.00

REV 0



H.L. Spurlock Power Station

- Proposed Borrow Area
- Existing Borrow Areas
- Drainage Area 00I
- Drainage Area 00K
- Drainage Area 00L
- Drainage Area 008
- Drainage Area 011
- Drainage Area 00J
- Property Boundary

Notes:
1. CONFIDENTIAL ATTORNEY WORK PRODUCT

Stanley Consultants INC.

July 2017

Figure 3: Landfill Drainage Area Map with Proposed and Existing Borrow Areas

EAST KENTUCKY POWER COOPERATIVE, INC.
H.L. Spurlock Power Station
1301 West Second Street
Maysville, KY 41056

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Issued for Permit Submittal	7/27/17	AB	BC	TM

EAST KENTUCKY POWER COOPERATIVE

27173.01.00

REV 0

Note: Acid is 93% Sulfuric *Bleach: Sodium Hypochlorite 12.5%* 3/6/2017

Spurlock Station Tank Capacities

	Unit 1	Gallons
	Phosphate Day Tank	110
	Hydrazine Day Tank	110
	Amine Day Tank (NA2060)	110
8' X 6'	*Polisher Caustic Storage (Empty)*	2,000
3' X 3'	*Polisher Acid Day Tank (Empty)*	160
3' X 3'6"	*Polisher Caustic Day Tank (Empty)*	180
	Unit 2	
NA0160	Amine Storage Tank	280
NA0160	Amine Day Tank	100
	Phosphate	180
	Aq. Ammonia Day Tank	140
	Hydrated Lime (Rented Silo)	2,000 cu.ft.
	Unit 3	
	Aq. Ammonia Day Tank	145
	Phosphate Day Tank	145
	Aq. Ammonia Storage	280
	Unit 4	
	Aq. Ammonia Day Tank	145
	Phosphate Day Tank	145
	Aq. Ammonia Storage	280
	Water Service Building	
(10'X24')	Acid Storage Tanks	13,000 (2)
8' X 6'	Demineralizer Supply	2,000
8' X 14'6"	50% Membrane Caustic	5,400
4' X 4'	Acid Regeneration	375
8' X 16"	50% Reg. Grade Caustic	6,000
	Demin. Storage	500,000
994931	Biocide CT 1300	1,500
971595	Depositrol BL 5400	1,500
971596	Gengard GN7004	1,500
0001	Inhibitor AZ 8100	6,000
5' X 6'	Unit 1&2 Acid Day Tank	800 (2)
4' X 9'6"	Klaraid CDP 1304	850
Totes	Sodium Bisulfite	3200 lb/tote
	River Intake	
980428	Biocide CT 1300	560
291193	Transfer Tower Units #3 / #4 DC6109	850
120041	Transfer Tower #2 Dustreat DC6109	880
120042	Transfer Tower #2 Dustreat DC6109	880
114832	Transfer Tower #2 Dustreat DC6109	4000
Totes	Coal Yard (16 totes @ 275 gal each)	4400
Totes	Coal Yard (6 totes @ 270 gal each)	1620
	Transfer Tower #1 Ice-Trol 941	1000
	Transfer Tower #2 Ice-Trol 941	2100
	Transfer Tower #3 Ice-Trol 941	1400

	Reboiler	Gallons
	Sulfite (Cortrol IS101)	65
	Phosphate/Caustic Day Tank	130
	Amine Storage NA2060 (Unit 1)	2,000
	Dispersant (Optisperse SP8300)	1,500
7'2" X 8'	50% Membrane Caustic	2,572
	RO	
37' X 35'6"	RO Treated Storage Tank # 1	250,000
	RO Treated Storage Tank # 2	250,000
	RO Anti-scalant (Hypersperse MDC700)	65
	Acid Day Tank	300
	Pretreatment	
19' X 20'6"	Chlorine Contact Tank (12.5 %)	34,000
	Sulfite (Cortrol IS101)	65
	Potassium Permanganate	65
	Bleach Storage Tank	2,500
0002	Klaraid CDP1304 Storage Tank	7,000
971538	Klaraid CDP1304 Storage Tank	7,000
	Unit 1 FGD	
4' X 9'6"	Scale Trol PDC 9333	850
Tote	Polyfloc AE1703	250
12' X 14'	MgOH2	10,000
Nalco	Mercontrol 8034	15,000
	Unit 2 FGD	
4' X 9'6"	Scale Trol PDC 9333	850
Tote	Polyfloc AE1703	250
12' X 16'	MgOH2	12,000
	Crusher House	
Nalco	Ca Bromide (Mercontrol 7895)	4,500
	Main Plant	
24' X 22'	Cond. Storage Tanks (1&2)	70,000 ea.
27' X 22'	Cond. Storage Tanks (3&4)	90,000 ea.
	Unit 3/4 C.T. Treatment Bldg.	
	Bleach Storage Tank	1,800
270628	Depositrol BL 5400	1,500
270629	Gengard GN7004	1,500
242718	Biocide CT 1300	1,500
270655	Klaraid CDP1304 Storage Tank	3,000
270656	Klaraid CDP1304 Storage Tank	3,000
7' x 18'6"	Acid Storage Tank	5,300
	Unit 3 & 4 Acid Day Tank	600 ea.
	Units 1&2 Crusher House Ice-Trol 941	2100
	Units 3&4 Crusher House Ice-Trol 941	2025
	SLC Conveyor Ice-Trol 941	1500
	Transfer Tower #2 EG-2600 Dust Supp.	1500
	Transfer Tower #2 EG-2600 Dust Supp.	5000
	Transfer Tower #3 EG-2600 Dust Supp.	1500
	Transfer Tower #3 EG-2600 Dust Supp.	5000

Hydrogen Peroxide 30% Bulk Truck (3&4 Towers Only)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBILGEAR 600 XP 100**
Product Description: Base Oil and Additives
Product Code: 201560401210, 613612-00, 97AE97
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	www.exxon.com, www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
AMINES, C12-14-TERT-ALKYL	68955-53-3	0.1 - < 0.25%	H302, H311, H317, H330(2), H314(1B), H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.884
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C

Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 100 cSt (100 mm2/sec) at 40 °C | 11.2 cSt (11.2 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -12°C (10°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.

Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
AMINES, C12-14-TERT-ALKYL	Dermal Lethality: LD50 251 mg/kg (Rat); Inhalation Lethality: 4 hour(s) LC50 1.19 mg/l (Vapor) (Rat); Oral Lethality: LD50 612 mg/kg (Rat)

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract. Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components, this formulation, or similar formulations.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, KECI, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H311: Toxic in contact with skin; Acute Tox Dermal, Cat 3
H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B

H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H330(2): Fatal if inhaled; Acute Tox Inh, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
Section 01: Company Contact Methods information was modified.
Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 11 Acute Toxicity data - Header information was added.
Section 11 Substance Name - Header information was added.
Section 11 Substance Toxicity table - Header information was added.
Section 11 Substance Toxicology table information was added.
Section 11: Other Health Effects information was modified.
Section 14: Marine Pollutant information was modified.
Section 16: HCode Key information was modified.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 7077870XUS (1012011)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBILTAC 375 NC**
Product Description: Hydrocarbons and Additives
Product Code: 201560404015, 611178-00, 977026
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	1	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	1	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ASPHALT (PETROLEUM)	8052-42-4	30 - 60%	None
HYDROTREATED LIGHT DISTILLATE	64742-47-8	5 - 10%	H226, H304, H336, H401, H411
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	64742-46-7	5 - 10%	H227, H304, H332, H315, H401, H411
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	1 - 5%	H315, H319(2A), H401, H411

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: May generate irritating and harmful gases/vapors/fumes when burning. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Sulfur oxides, Hydrogen sulfide, Oxides of carbon, Incomplete combustion products, Smoke, Fume

FLAMMABILITY PROPERTIES

Flash Point [Method]: >121°C (250°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Chemical goggles and face shield are recommended if contact of eyes with hot product or vapours is possible. Small spills: normal work clothes are usually adequate. Large spills: full body suit of chemical and thermal resistant material is recommended. Work gloves (preferably gauntlet style) that provide adequate chemical resistance. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. If contact with hot product is possible or anticipated, heat-resistant and thermally insulated gloves are recommended.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Hydrogen sulfide (H2S) may be given off when this material is heated. Do not depend on sense of smell for warning. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames, and high temperatures. Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
ASPHALT (PETROLEUM) [benzene solubles]	Inhalable fraction.	TWA	0.5 mg/m3		N/A	ACGIH
HYDROTREATED LIGHT DISTILLATE [total hydrocarbon vapor]	Non-Aerosol	TWA	200 mg/m3		Skin	ACGIH
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	Mist.	TWA	5 mg/m3		N/A	OSHA Z1

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Solid
Form: Semi-fluid
Color: Black
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.96 [ASTM D1298]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >121°C (250°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 170°C (338°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: N/D
Evaporation Rate (n-butyl acetate = 1): < 1
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 5000 cSt (5000 mm2/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or

	lungs.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 404
Eye	
Serious Eye Damage/Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 405
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Asphalt (bitumen): May contain low levels of polycyclic aromatic compounds (PACs), some of which are suspected of causing cancer under conditions of poor industrial hygiene and prolonged repeated contact. These PACs may also be inhaled. Inhalation studies at high concentrations of fumes resulted in bronchitis, pneumonitis, fibrosis and cell damage. Avoid contact with the asphalt emissions. Middle distillates: Carcinogenic in animal tests. Lifetime skin painting tests produced tumors, but the mechanism is due to repeated cycles of skin damage and restorative hyperplasia. This mechanism is considered unlikely in humans where such prolonged skin irritation would not be tolerated. Did not cause mutations In Vitro. Inhalation of vapors did not result in reproductive or developmental effects in laboratory animals. Inhalation of high concentrations in animals resulted in respiratory tract irritation, lung changes and some reduction in lung function. Non-sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

High molecular wt. component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Low molecular wt. component -- Expected to be inherently biodegradable

High molecular wt. component -- Expected to be persistent.

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants. Suitable routes of disposal are supervised incineration, preferentially with energy recovery, or appropriate recycling methods in accordance with applicable regulations and material characteristics at the time of disposal.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It

does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	1 - 5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ASPHALT (PETROLEUM)	8052-42-4	1, 13, 16, 17, 18
HYDROTREATED LIGHT DISTILLATE	64742-47-8	1, 17, 18
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	64742-46-7	4, 17, 18
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	13, 15, 17, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H226: Flammable liquid and vapor; Flammable Liquid, Cat 3
H227: Combustible liquid; Flammable Liquid, Cat 4
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A
H332: Harmful if inhaled; Acute Tox Inh, Cat 4
H336: May cause drowsiness or dizziness; Target Organ Single, Narcotic
H401: Toxic to aquatic life; Acute Env Tox, Cat 2
H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

Internal Use Only

MHC: 0, 0, 0, 0, 0, 1 PPEC: A

DGN: 2009223XUS (555018)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBILGEAR 600 XP 680
Product Description: Base Oil and Additives
Product Code: 201560401235, 613661-00, 97AF02
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	www.exxon.com, www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary

from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
AMINES, C12-14-TERT-ALKYL	68955-53-3	0.1 - < 0.25%	H302, H311, H317, H330(2), H314(1B), H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of

respirators to be considered for this material include:
No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:
No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.914 [ASTM D4052]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa

Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 680 cSt (680 mm2/sec) at 40 °C | 36.4 cSt (36.4 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -3°C (27°F) [ASTM D97]
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data	Not expected to be a respiratory sensitizer.

for material.	
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
AMINES, C12-14-TERT-ALKYL	Dermal Lethality: LD50 251 mg/kg (Rat); Inhalation Lethality: 4 hour(s) LC50 1.19 mg/l (Vapor) (Rat); Oral Lethality: LD50 612 mg/kg (Rat)

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract. Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components, this formulation, or similar formulations.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
SOLVENT DEASPHALTED RESIDUAL OIL	64741-95-3	1, 3

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
ENCS	Restrictions Apply

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H311: Toxic in contact with skin; Acute Tox Dermal, Cat 3
H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H330(2): Fatal if inhaled; Acute Tox Inh, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
Section 01: Company Contact Methods information was modified.
Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 11 Acute Toxicity data - Header information was added.
Section 11 Substance Name - Header information was added.
Section 11 Substance Toxicity table - Header information was added.
Section 11 Substance Toxicology table information was added.
Section 11: Other Health Effects information was modified.
Section 11: Tox List Cited Table information was added.
Section 14: Marine Pollutant information was modified.
Section 16: HCode Key information was modified.

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Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 7077906XUS (1022655)

JET-LUBE®
A CSW Industrials Company

SAFETY DATA SHEET

Issuing Date 01-Jun-2015 **Revision Date** 13-Mar-2017 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS product identifier

Product Name **KILN GREASE HT™**

Other means of identification

Product Code(s) **751**

Synonyms JET-LUBE® KILN GREASE; ILEX KILN GREASE

Recommended use of the chemical and restrictions on use

Recommended Use Lubricants, Greases and Release Products, Sealant

Uses advised against No information available

Supplier's details

Manufacturer Address
Jet-Lube, LLC
930 Whitmore Dr.
Rockwall, Texas 75087
TEL: 972-771-1000
Toll Free: 1-800-669-6318

Emergency telephone number

Emergency Telephone Number CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

GHS Label elements, including precautionary statements

Emergency Overview

Signal Word **None**

The product contains no substances which at their given concentration are considered to be hazardous to health

Appearance Green **Physical State** Semi-fluid (gel). **Odor** Slight

Precautionary Statements

Prevention

- None

General Advice
• None

Storage
• None

Disposal
• None

Hazard Not Otherwise Classified (HNOC)

Not applicable

Other information
7.62% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms JET-LUBE® KILN GREASE; ILEX KILN GREASE

Chemical Name	CAS-No	Weight %	Trade secret
Lubricating greases A complex combination of hydrocarbons having carbon numbers predominantly in the range of C12 through C50. may contain organic salts of alkali metals, alkaline earth metals, etc.	74869-21-9	60-100	*
Calcium carbonate	471-34-1	3-7	*

**The exact percentage (concentration) of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash skin with soap and water. If skin irritation persists, call a physician.

Inhalation Move to fresh air.

Ingestion Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician if necessary

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects No information available.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical
No information available.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with the skin and the eyes. Refer to Section 8 for personal protective equipment.

Environmental Precautions

Environmental Precautions Do not allow material to contaminate ground water system. See Section 12 for additional Ecological Information.

Methods and materials for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from oxidizing materials.

Incompatible Products Strong oxidizing agents. Water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Calcium carbonate 471-34-1	-	TWA: 15 mg/m3 TWA: 5 mg/m3 (vacated) TWA: 15 mg/m3 (vacated) TWA: 5 mg/m3	TWA: 10 mg/m3 total dust TWA: 5 mg/m3 respirable dust

Immediately Dangerous to Life or Health. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH:

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection If splashes are likely to occur, wear: Safety glasses with side-shields.
Skin and Body Protection Protective gloves.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Semi-fluid (gel)	**Appearance**	Green
Odor	Slight	**Odor Threshold**	No information available

Property	Values	Remarks/ - Method
pH	Neutral	None known
Melting Point/Range	≥ 260 °C / >374 °F	None known
Boiling Point/Boiling Range	> 316 °C / 600.8 °F	None known
Flash Point	> 315 °C	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
upper flammability limit	No data available	
lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Gravity	0.95	None known
Water Solubility	Insoluble in water.	None known
Solubility in other solvents	Largely.	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known

Flammable Properties Not flammable

Explosive Properties No data available
Oxidizing Properties No data available

Other information

VOC Content (%) 0.5

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Incompatible products. Protect from moisture.

Incompatible materials

Strong oxidizing agents. Water.

Hazardous decomposition products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	None under normal use condtions
Eye Contact	Contact with eyes may cause irritation.
Skin Contact	Repeated exposure may cause skin dryness or cracking.
Ingestion	May be harmful if swallowed. May cause gastrointestinal discomfort if consumed in large amounts.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Lubricating greases A complex combination of hydrocarbons having carbon numbers predominantly in the range of C12 through C50. may contain organic salts of alkali metals, alkaline earth metals, etc.	= 2280 mg/kg (Rat)		
Calcium carbonate	= 6450 mg/kg (Rat)		

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Sensitization	No information available.
Mutagenic Effects	No information available.
Carcinogenicity	Contains no ingredients above reportable quantities listed as a carcinogen.
Reproductive Toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration Hazard	No information available.

Numerical measures of toxicity - Product

Acute Toxicity 7.62% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document:

LD50 Oral 2469 mg/kg; Acute toxicity estimate

12. ECOLOGICAL INFORMATION

Ecotoxicity

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
complex combination of hydrocarbons having carbon numbers predominantly in the range of C12 through C50. may contain organic salts of alkali metals, alkaline earth metals, etc.	>1001 mg/l	LC50 96 h: > 2000 mg/L (Salmo gairdneri)		

Persistence and Degradability No information available.

Bioaccumulation No information available.

Other Adverse Effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with federal, state, and local regulations

Contaminated Packaging Do not re-use empty containers.

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Calcium carbonate	X	X	X		

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard** 0	**Flammability** 1	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard** 0	**Flammability** 1	**Physical Hazard** 0	**Personal Protection** X

Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date 01-Jun-2015
Revision Date 13-Mar-2017
Revision Note Updated company information.

General Disclaimer
The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Black Pearl Grease EP NLGI 0, 1, 2

Product Use: Grease
Product Number(s): 254590, 254591, 254592
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if

contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions: A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with

applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation

Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Black
Physical State: Semi-solid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg Maximum @ 40 °C (104 °F)
Vapor Density (Air = 1): >1 Minimum
Initial Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Melting Point: 205°C (401°F) Minimum
Specific Gravity: 0.9 @ 15.6°C (60.1°F)
Density: No data available
Viscosity: 13.5 mm2/s @ 100°C (212°F) Minimum
Decomposition temperature: No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available
Flashpoint: (Cleveland Open Cup) 246 °C (475 °F) (Estimated)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: This material is not expected to react.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for similar materials.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for similar materials.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.
Carcinogenicity: The hazard evaluation is based on data for components or a similar material.
Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.
Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material. The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.The product has not been tested. The statement has been derived from products of a similar structure and composition.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia), PICCS (Philippines).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet:
Revision Date: APRIL 15, 2014

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Coupling Grease

Product Use: Grease
Product Number(s): 219575, 230003
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt

Zinc dialkyldithiophosphate	68649-42-3	1 - 5 %wt/wt

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown
Physical State: Semi-solid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg Maximum @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Initial Boiling Point: 315°C (599°F)
Solubility: Insoluble in water.
Freezing Point: Not Applicable
Melting Point: 160°C (320°F) (Min)
Viscosity: 612 mm2/s - 748 mm2/s @ 40°C (104°F)
Evaporation Rate: No data available
Decomposition temperature: No Data Available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 224 °C (435 °F) (Typical)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: This material is not expected to react.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for similar materials.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material. The product has not been tested. The statement has been derived from products of a similar structure and composition.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO

2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.
Zinc dialkyldithiophosphate 03, 06

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: KECI (Korea).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : GREASE 1 - GRS1

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1-16
Revision Date: JULY 08, 2014

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit

GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

ExxonMobil

583054-00 MOBIL HYDRAULIC OIL AW 150
MATERIAL SAFETY DATA BULLETIN

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1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MOBIL HYDRAULIC OIL AW 150
SUPPLIER: EXXONMOBIL OIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA 22037

24 - Hour Health and Safety Emergency (call collect): 609-737-4411

24 - Hour Transportation Emergency:
CHEMTREC: 800-424-9300 202-483-7616
LUBES AND FUELS: 281-834-3296

Product and Technical Information:
Lubricants and Specialties: 800-662-4525 800-443-9966
Fuels Products: 800-947-9147
MSDS Fax on Demand: 713-613-3661
MSDS Internet Website: http://www.exxon.com, http://www.mobil.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: SEVERE TREAT MIN. OILS & ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

None.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

Under normal conditions of use, this product is not considered hazardous according to regulatory guidelines (See section 15).

EMERGENCY OVERVIEW: Brown Liquid. Note: Pressurized mists may form a flammable mixture. DOT ERG No. : NA

POTENTIAL HEALTH EFFECTS: Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure

may result in eye, skin or respiratory irritation.

For further health effects/toxicological data, see Section 11.

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4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Wash contact areas with soap and water. Remove and clean oil soaked clothing daily and wash affected area.
INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION: Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapor or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.

INGESTION: Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

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5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Note: Pressurized mists may form a flammable mixture.

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C(F): > 252(486) (ASTM D-92).

Flammable Limits (approx.% vol.in air) - LEL: 0.9%, UEL: 7.0%

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

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6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.
WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

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7. HANDLING AND STORAGE

HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention. No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.

SPECIAL PRECAUTIONS: Prevent small spills and leakages to avoid slip hazard.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

When mists/aerosols can occur, the following are recommended: 5 mg/m3 (as oil mist)- ACGIH Threshold Limit Value (TLV), 10 mg/m3 (as oil mist) - ACGIH Short Term Exposure Limit (STEL), 5 mg/m3 (as oil mist) - OSHA Permissible Exposure Limit (PEL)

VENTILATION: If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.

RESPIRATORY PROTECTION: If mists are generated, and/or when ventilation is not adequate, wear approved respirator.

EYE PROTECTION: If eye contact is likely, safety glasses with side

shields or chemical type goggles should be worn.
SKIN PROTECTION: Not normally required. When splashing or liquid contact can occur frequently, wear oil resistant gloves and/or other protective clothing. Good personal hygiene practices should always be followed.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid
COLOR: Brown
ODOR: Mild
ODOR THRESHOLD-ppm: NE
pH: NA
BOILING POINT C(F): > 316(600)
MELTING POINT C(F): NA
FLASH POINT C(F): > 252(486) (ASTM D-92)
FLAMMABILITY (solids): NE
AUTO FLAMMABILITY C(F): NA
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: < 0.1
VAPOR DENSITY: > 2.0
EVAPORATION RATE: NE
RELATIVE DENSITY, 15/4 C: 0.888
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: > 3.5
VISCOSITY AT 40 C, cSt: 150.0
VISCOSITY AT 100 C, cSt: 16.6
POUR POINT C(F): < -12(10)
FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: NE
DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

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10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION: Will not occur.

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11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---
ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

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12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative products.

ECOTOXICITY: Available ectoxicity data (LL50 >1000 mg/L) indicates that adverse effects to aquatic organisms are not expected from this product.

MOBILITY: When released into the environment, adsorption to sediment and soil will be the predominant behavior.

PERSISTENCE AND DEGRADABILITY: This product is expected to be inherently biodegradable.

BIOACCUMULATIVE POTENTIAL: Bioaccumulation is unlikely due to the very low water solubility of this product, therefore bioavailability to aquatic organisms is minimal.

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13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity. The unused product is not formulated with substances covered by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

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14. TRANSPORT INFORMATION

USA DOT: NOT REGULATED BY USA DOT.

RID/ADR: NOT REGULATED BY RID/ADR.

IMO: NOT REGULATED BY IMO.

IATA: NOT REGULATED BY IATA.

STATIC ACCUMULATOR (50 picosiemens or less): YES

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15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this product is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

EU Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling not required.

Governmental Inventory Status: All components comply with TSCA, EINICS/ELINCS, AICS, DSL, KOREA, and PHILIPPINES.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

This product contains no chemicals subject to the supplier notification requirements of SARA (313) toxic release program.

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS *
ZINC (ELEMENTAL ANALYSIS) (<0.05%)	7440-66-6	22
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2: 1) (ZDDP) (0.43%)	68649-42-3	22

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.
Code key:CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

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16. OTHER INFORMATION

USE: HYDRAULIC OIL

NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES

ARE NOT FORMULATED TO CONTAIN PCBS.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INDUSTRIAL LABEL

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

****
For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: A, TRN: 583054-00, CMCS97: 971938, REQ: US - MARKETING, SAFE USE: L
EHS Approval Date: 13JUN2003
****

Prepared by: ExxonMobil Oil Corporation
Environmental Health and Safety Department, Clinton, USA

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE 10 EXCEL 46**
Product Description: Base Oil and Additives
Product Code: 201560103640, 622639-00, 97AZ00
Intended Use: Hydraulic fluid

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYLPHENOL	128-39-2	0.1 - < 1%	H315, H319(2A), H400(M factor 1), H410(M factor 1)
ALKYL DITHIOPHOSPHATE		0.1 - < 1%	H319(2A), H400(M factor 1), H410(M factor 1)
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	10 - < 20%	H304
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	64742-65-0	1 - < 5%	H304

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurized mists may form a flammable mixture.

Hazardous Combustion Products: Aldehydes, Oxides of carbon, Incomplete combustion products, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m3		N/A	ACGIH
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m3		N/A	OSHA Z1
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE		TWA	2000 mg/m3	500 ppm	N/A	OSHA Z1
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m^3 - ACGIH TLV (inhalable fraction), 5 mg/m^3 - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.85
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 45.8 cSt (45.8 mm2/sec) at 40 °C | 8.5 cSt (8.5 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -39°C (-38°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

OTHER ECOLOGICAL INFORMATION

VOC: 1.5 G/L [ASTM E1868-10]

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE

SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: DSL, ENCS, PICCS, TSCA
Special Cases:

Inventory	Status
AICS	Restrictions Apply
IECSC	Restrictions Apply
KECI	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK

3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 7087042XUS (1013883)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE 24**
Product Description: Base Oil and Additives
Product Code: 201560102010, 602623-00, 970972
Intended Use: Hydraulic fluid

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYL-P-CRESOL	128-37-0	0.1 - < 1%	H400(M factor 1), H410(M factor 1)
NAPHTHALENESULFONIC ACID, DINONYL-, CALCIUM SALT	57855-77-3	0.1 - < 1%	H315, H318, H317

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurized mists may form a flammable mixture.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
2,6-DI-TERT-BUTYL-P-CRESOL	Inhalable fraction and vapor	TWA	2 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15.6 °C): 0.871

Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 32 cSt (32 mm2/sec) at 40 °C | 5.3 cSt (5.3 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.

Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
2,6-DI-TERT-BUTYL-P-CRESOL	Oral Lethality: LD50 0.89 g/kg (Rat)

OTHER INFORMATION

For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components or similar formulations.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

OTHER ECOLOGICAL INFORMATION

VOC: 0 G/L [ASTM E1868-10]

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	15, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

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Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007783XUS (1014069)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE 25**
Product Description: Base Oil and Additives
Product Code: 201560102020, 602631-00, 970826
Intended Use: Hydraulic fluid

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYL-P-CRESOL	128-37-0	0.1 - < 1%	H400(M factor 1), H410(M factor 1)
NAPHTHALENESULFONIC ACID, DINONYL-, CALCIUM SALT	57855-77-3	0.1 - < 1%	H315, H318, H317

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurized mists may form a flammable mixture.

Hazardous Combustion Products: Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides, Aldehydes

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
2,6-DI-TERT-BUTYL-P-CRESOL	Inhalable fraction and vapor	TWA	2 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15.6 °C): 0.876

Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 46 cSt (46 mm2/sec) at 40 °C | 6.7 cSt (6.7 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.

Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
2,6-DI-TERT-BUTYL-P-CRESOL	Oral Lethality: LD50 0.89 g/kg (Rat)

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

OTHER ECOLOGICAL INFORMATION

VOC: 0 G/L [ASTM E1868-10]

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	15, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007796XUS (1012764)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE 26**
Product Description: Base Oil and Additives
Product Code: 201560102030, 602649-00, 970101
Intended Use: Hydraulic fluid

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYL-P-CRESOL	128-37-0	0.1 - < 1%	H400(M factor 1), H410(M factor 1)
NAPHTHALENESULFONIC ACID, DINONYL-, CALCIUM SALT	57855-77-3	0.1 - < 1%	H315, H318, H317

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurized mists may form a flammable mixture.

Hazardous Combustion Products: Aldehydes, Smoke, Fume, Sulfur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >204°C (399°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
2,6-DI-TERT-BUTYL-P-CRESOL	Inhalable fraction and vapor	TWA	2 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15.6 °C): 0.881

Flammability (Solid, Gas): N/A
Flash Point [Method]: >204°C (399°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 68 cSt (68 mm2/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.

Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
2,6-DI-TERT-BUTYL-P-CRESOL	Oral Lethality: LD50 0.89 g/kg (Rat)

OTHER INFORMATION

For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components or similar formulations.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

OTHER ECOLOGICAL INFORMATION

VOC: 0 G/L [ASTM E1868-10]

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007812XUS (546747)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE 732**

Product Description: Base Oil and Additives

Product Code: 201560302015, 607200-00, 97AS85

Intended Use: Turbine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ALKYL PHENOL		0.1 - < 1%	H400(M factor 1), H410(M factor 1)
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	10 - < 20%	H304

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by

a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >93°C (200°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m^3 - ACGIH TLV (inhalable fraction), 5 mg/m^3 - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.86 - 1
Flammability (Solid, Gas): N/A
Flash Point [Method]: >93°C (200°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D

pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Slight
Viscosity: >20.5 cSt (20.5 mm2/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -1 °C (30 °F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point	May cause mild, short-lasting discomfort to eyes. Based on

data for material.	assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 09: Flash Point C(F) information was modified.
Section 09: Pour Point C(F) information was modified.
Section 09: Relative Density information was modified.
Section 09: Solubility in Water information was modified.
Section 09: Viscosity information was deleted.
Section 09: Viscosity information was modified.
Section 14: Marine Pollutant information was modified.
Section 15: Community RTK - Header information was modified.
Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 7080560XUS (1012743)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE 832**
Product Description: Base Oil and Additives
Product Code: 201560303010, 600098-00, 977656
Intended Use: Turbine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	30 - < 40%	H304
TRIPHENYL PHOSPHATE	115-86-6	0.1 - < 1%	H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides, Phosphorus oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >215°C (419°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m3		N/A	ACGIH
TRIPHENYL PHOSPHATE		TWA	3 mg/m3		N/A	OSHA Z1
TRIPHENYL PHOSPHATE		TWA	3 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Pale Yellow
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.86
Flammability (Solid, Gas): N/A
Flash Point [Method]: >215°C (419°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 29.6 cSt (29.6 mm2/sec) at 40 °C | 5.4 cSt (5.4 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -30°C (-22°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.

Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land.

Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY
Biodegradation:
Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL
Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS
Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION
RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
PHENOL, 4,4-METHYLENEBIS(2,6-BIS(1,1-DIMETHYLETHYL)-	118-82-1	5

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007036XUS (547689)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL AA**

Product Description: Base Oil and Additives

Product Code: 201560501510, 600254-00, 970353

Intended Use: Circulating oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
NAPHTHALENESULFONIC ACID, DINONYL-, CALCIUM SALT	57855-77-3	0.1 - < 1%	H315, H318, H317

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be

minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >238°C (460°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification

Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.9
Flammability (Solid, Gas): N/A
Flash Point [Method]: >238°C (460°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 324.9 cSt (324.9 mm2/sec) at 40 °C | 24.4 cSt (24.4 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -12°C (10°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-

	chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components or similar formulations.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	15, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 11: Other Health Effects Header information was modified.
Section 11: Other Health Effects information was added.
Section 14: Marine Pollutant information was modified.
Section 15: Community RTK - Header information was modified.
Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007155XUS (548053)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL BB**
Product Description: Base Oil and Additives
Product Code: 201560501520, 600221-00, 970905
Intended Use: Circulating/gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
NAPHTHALENESULFONIC ACID, DINONYL-, CALCIUM SALT	57855-77-3	0.1 - < 1%	H315, H318, H317

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams,

sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurized mists may form a flammable mixture.

Hazardous Combustion Products: Aldehydes, Oxides of carbon, Incomplete combustion products, Sulfur oxides, Smoke, Fume

FLAMMABILITY PROPERTIES

Flash Point [Method]: >234°C (453°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m^3 - ACGIH TLV (inhalable fraction), 5 mg/m^3 - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.89
Flammability (Solid, Gas): N/A
Flash Point [Method]: >234°C (453°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C

Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 220 cSt (220 mm2/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -12°C (10°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.

Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	15, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

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examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007132XUS (546634)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL EXTRA HEAVY**

Product Description: Base Oil and Additives

Product Code: 201560501595, 600205-00, 970010

Intended Use: Circulating oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
CALCIUM SULFONATE	57855-77-3	0.1 - < 1%	H315, H318, H317

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent

of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >227°C (441°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum

requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in

open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Form: Clear
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.89 [ASTM D1298]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >227°C (441°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 146.2 cSt (146.2 mm2/sec) at 40 °C | 14.4 cSt (14.4 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -12°C (10°F) [ASTM D97]
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-

	chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components or similar formulations.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	15, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 09: Pour Point C(F) information was modified.
Section 09: Relative Density information was modified.
Section 09: Vapor Pressure information was added.
Section 14: Marine Pollutant information was modified.
Section 15: Community RTK - Header information was modified.
Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted.

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Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007114XUS (1013921)

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL HEAVY MEDIUM**
Product Description: Base Oil and Additives
Product Code: 201560501590, 600163-00, 970172
Intended Use: Turbine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300
ExxonMobil Transportation No.	281-834-3296
Product Technical Information	800-662-4525, 800-947-9147
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use

adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >223C (433F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders. For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.87
Flash Point [Method]: >223C (433F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316C (600F) [Estimated]
Vapor Density (Air = 1): > 2 at 101 kPa [Estimated]
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 C [Estimated]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated]
Solubility in Water: Negligible
Viscosity: 67.9 cSt (67.9 mm2/sec) at 40 C | 8.7 cSt (8.7 mm2/sec) at 100C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -27°C (-17°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt
Decomposition Temperature: N/D

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks

Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

Additional information is available by request.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

Complies with the following national/regional chemical inventory requirements:: DSL, IECSC, TSCA, EINECS, PICCS, AICS

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 06: Notification Procedures - Header was modified.
Section 13: Disposal Considerations - Disposal Recommendations was modified.
Section 10 Stability and Reactivity - Header was modified.
Section 13: Disposal Recommendations - Note was modified.
Section 13: Empty Container Warning was modified.
Section 09: Phys/Chem Properties Note was modified.
Section 09: Boiling Point C(F) was modified.
Section 09: Flash Point C(F) was modified.
Section 09: n-Octanol/Water Partition Coefficient was modified.
Section 08: Personal Protection was modified.
Section 08: Hand Protection was modified.
Section 07: Handling and Storage - Handling was modified.
Section 07: Handling and Storage - Storage Phrases was modified.
Section 11: Dermal Lethality Test Data was modified.

Section 11: Oral Lethality Test Data was modified.
Section 05: Hazardous Combustion Products was modified.
Section 06: Accidental Release - Spill Management - Water was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 09: Viscosity was modified.
Section 14: Sea (IMDG) - Header was modified.
Section 14: Air (IATA) - Header was modified.
Section 14: LAND (TDG) - Header was modified.
Section 14: LAND (DOT) - Header was modified.
Section 15: List Citation Table - Header was modified.
Section 14: LAND (DOT) - Default was modified.
Section 14: LAND (TDG) Default was modified.
Section 14: Sea (IMDG) - Default was modified.
Section 14: Air (IATA) - Default was modified.
Section 15: National Chemical Inventory Listing - Header was modified.
Section 15: National Chemical Inventory Listing was modified.
Section 16: Code to MHCs was modified.
Section 08: Exposure limits/standards was modified.
Hazard Identification: OSHA - May be Hazardous Statement was modified.
Section 06: Notification Procedures was modified.
Section 09: Oxidizing Properties was modified.
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 06: Protective Measures was added.
Section 06: Accidental Release - Protective Measures - Header was added.
Section 15: Chemical Name - Header was added.
Section 15: CAS Number - Header was added.
Section 15: List Citations - Header was added.
Section 15: List Citations Table was added.
Section 09: Decomposition Temperature was added.
Section 09: Decomposition Temp - Header was added.
Section 09: Vapor Pressure was added.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007083XUS (1013293)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL HEAVY**

Product Description: Base Oil and Additives

Product Code: 201560501580, 600189-00, 970106

Intended Use: Turbine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYLPHENOL	128-39-2	0.1 - < 1%	H315, H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be

minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >215°C (419°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification

Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.879
Flammability (Solid, Gas): N/A
Flash Point [Method]: >215°C (419°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 98.5 cSt (98.5 mm2/sec) at 40 °C | 9.9 cSt (9.9 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-

	chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY
Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	15
ZINC DITHIOPHOSPHATE	68649-42-3	15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified.
Section 01: Company Mailing Address information was modified.
Section 05: Hazardous Combustion Products information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 14: Marine Pollutant information was modified.
Section 15: Community RTK - Header information was modified.
Section 16: HCode Key information was modified.
Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007096XUS (1013599)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL LIGHT**
Product Description: Base Oil and Additives
Product Code: 201560501560, 600148-00, 970294
Intended Use: Turbine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525, 800-947-9147
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1900.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYLPHENOL	128-39-2	0.1 - < 1%	H315, H319(2A), H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Oxides of carbon, Smoke, Fume, Incomplete combustion products, Sulfur oxides, Aldehydes

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways,

sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.869
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D

pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 31 cSt (31 mm2/sec) at 40 °C | 5.5 cSt (5.5 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION
Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on

	physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate

and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007057XUS (538877)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DTE OIL MEDIUM**

Product Description: Base Oil and Additives

Product Code: 201560501570, 600155-00, 970391

Intended Use: Turbine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77253 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,6-DI-TERT-BUTYL-P-CRESOL	128-37-0	0.1 - < 1%	H400(M factor 1), H410(M factor 1)
2,6-DI-TERT-BUTYLPHENOL	128-39-2	0.1 - < 1%	H315, H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by

a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
2,6-DI-TERT-BUTYL-P-CRESOL	Inhalable fraction and vapor	TWA	2 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m^3 - ACGIH TLV (inhalable fraction), 5 mg/m^3 - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove

manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.86 [ASTM D4052]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 44.5 cSt (44.5 mm2/sec) at 40 °C | 6.9 cSt (6.9 mm2/sec) at 100 °C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -15 °C (5 °F) [ASTM D97]
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
2,6-DI-TERT-BUTYL-P-CRESOL	Oral Lethality: LD50 0.89 g/kg (Rat)

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with

governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, PICCS, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified.
Section 01: Company Mailing Address information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Handling and Storage - Storage Phrases information was modified.
Section 09: Pour Point C(F) information was modified.
Section 09: Relative Density information was modified.
Section 09: Vapor Pressure information was added.
Section 14: Marine Pollutant information was modified.
Section 15: Community RTK - Header information was modified.
Section 16: HCode Key information was modified.
Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007070XUS (547711)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **SPARTAN EP 150**
Product Description: Base Oil and Additives
Product Code: 201560405710, 612150-00, 97P899
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

No Hazardous Substance(s) or Complex Substance(s) required for disclosure.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Sulfur oxides, Aldehydes, Smoke, Fume, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional

references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.89
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 150 cSt (150 mm2/sec) at 40 °C | 14.7 cSt (14.7 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -9°C (16°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for	Not expected to cause organ damage from prolonged or repeated

material.	exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable

laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status

ENCS	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2009283XUS (1008564)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **SPARTAN EP 220**
Product Description: Base Oil and Additives
Product Code: 201560405720, 612168-00, 97P812
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

No Hazardous Substance(s) or Complex Substance(s) required for disclosure.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional

references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.894
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 220 cSt (220 mm2/sec) at 40 °C | 19 cSt (19 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -9°C (16°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for	Not expected to cause organ damage from prolonged or repeated

material.	exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable

laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status

ENCS	Restrictions Apply
NDSL	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2009287XUS (549031)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **SPARTAN EP 320**
Product Description: Base Oil and Additives
Product Code: 201560405730, 612176-00, 97P900
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

No Hazardous Substance(s) or Complex Substance(s) required for disclosure.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Sulfur oxides, Aldehydes, Smoke, Fume, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional

references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.9
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 320 cSt (320 mm2/sec) at 40 °C | 24.1 cSt (24.1 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -9°C (16°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for	Not expected to cause organ damage from prolonged or repeated

material.	exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable

laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status

ENCS	Restrictions Apply
NDSL	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2009291XUS (1008566)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **SPARTAN EP 460**
Product Description: Base Oil and Additives
Product Code: 201560405740, 612184-00, 97P901
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
LONG-CHAIN ALKYL AMINE		0.1 - < 0.25%	H302, H311, H317, H330(2), H314(1B), H373, H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Sulfur oxides, Aldehydes, Smoke, Fume, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.9
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C

Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 460 cSt (460 mm2/sec) at 40 °C | 30.6 cSt (30.6 mm2/sec) at 100 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -9°C (16°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.

Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
ENCS	Restrictions Apply
NDSL	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H311: Toxic in contact with skin; Acute Tox Dermal, Cat 3
H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B
H317: May cause allergic skin reaction; Skin Sensitization, Cat 1
H330(2): Fatal if inhaled; Acute Tox Inh, Cat 2
H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1

H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

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Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2009296XUS (1008567)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL EXTRA HECLA SUPER CYLINDER OIL**
Product Description: Base Oil and Additives
Product Code: 20156050D030, 601237-00, 970761
Intended Use: Cylinder oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

No Hazardous Substance(s) or Complex Substance(s) required for disclosure.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Sulfur oxides, Aldehydes, Oxides of carbon, Incomplete combustion products, Smoke, Fume

FLAMMABILITY PROPERTIES

Flash Point [Method]: >282°C (540°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.92 [ASTM D4052]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >282°C (540°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: >680 cSt (680 mm2/sec) at 40 °C | 35.8 cSt (35.8 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: 0°C (32°F) [ASTM D97]
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY
Material -- Not expected to be harmful to aquatic organisms.

MOBILITY
Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY
Biodegradation:
Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL
Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS
Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents,

brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
OILS, LARD	8016-28-2	18

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2007390XUS (1015559)

ICL Industrial PRODUCTS

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)

Product name	**FYRQUEL EHC PLUS**	
Product id	7080	
Revision date	31/03/2014	**Revision:** 7
Supersedes	21/03/2013	

1. Identification of the substance & the company

Chemical name	tert-butylphenyl diphenyl phosphate
Chemical family	Aryl phosphate
Type of product and use	Fire-resistant hydraulic fluid
Supplier	ICL-IP America Inc. 622 Emerson Road - Suite 500St Louis, Missouri 63141, USA Tel:(314)983-7884 Fax:(314)983-7607 e-mail:msdsinfo@icl-ip.com
Emergency Telephone	Chemtrec (800)424-9300 Medical: PROSAR 1-888-875-1685 (24HRS)

2. Hazards identification

GHS	Product is not subject to classification according to GHS. No label elements required.
NFPA Ratings (Scale 0-4)	Health = 1, Fire = 1, Reactivity = 0.
HMIS Ratings (Scale 0-4)	Health = 1, Fire =1, Reactivity = 0.

3. Composition / information on ingredients

Components	CAS No.	Weight %
t-Butylphenyl diphenyl phosphate	56803-37-3	65-85
Bis(t-butylphenyl)phenyl phosphate	65652-41-7	10-30
Tri(t-butylphenyl) phosphate	78-33-1	0-10
Triphenyl phosphate	115-86-6	0-4

The new CAS number [68937-40-6] identifies the multi-constituent substance butylated triphenyl phosphate

4. First-aid measures

Eye contact	Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

ICL Industrial PRODUCTS

SAFETY DATA SHEET

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Skin contact	Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before reuse. Get medical attention if irritation persists.
Inhalation	In case of mist inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.
Ingestion	If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately. --- NOTE: Never give an unconscious person anything to drink ---
Symptoms / Effects, Acute and Delayed	No specific information available

Most important symptoms and effects, acute or delayed

None known.

Notes to the physician	Treat symptomatically and supportively. No specific antidote.

5. Fire - fighting measures

Suitable extinguishing media	Use extinguishing media appropriate to surrounding fire conditions.
Unusual fire and explosion hazards	When heated to decomposition, may release poisonous and corrosive fumes of carbon dioxide, carbon monoxide and phosphorus oxides.
Fire fighting procedure	Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA). Contain runoff to prevent entry into water or drainage systems.

6. Accidental release measures

Personal precautions	Wear appropriate safety clothing and eye/face protection (see Section 8).
Methods for cleaning up	Soak up with sand or other suitable absorbant and dispose of as solid waste. Collect in suitable and properly labeled containers. Ventilate area and wash spill site after material pickup is complete.
Environmental precautions	Prevent product from entering drains, ditches and rivers.

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7. Handling and storage

Handling Avoid bodily contact. Keep containers tightly closed.

Storage Store in a dry, cool, well-ventilated area. away from incompatible materials (see "materials to avoid"). Store above 4.4°C (40° F) for improved pumping rates. Temperatures between 27 - 37.8°C (80 - 100°F) provide good flow rates.

8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	OSHA (PEL) Data
t-Butylphenyl diphenyl phosphate 56803-37-3	Not determined	Not determined
Bis(t-butylphenyl)phenyl phosphate 65652-41-7	Not determined	Not determined
Tri(t-butylphenyl) phosphate 78-33-1	Not determined	Not determined
Triphenyl phosphate 115-86-6	3 mg/m^3	3 mg/m^3

Ventilation requirements Ventilation must be sufficient to maintain atmospheric concentration below recommended exposure limit.

Personal protective equipment:

- **Respiratory protection** In case of insufficient ventilation wear suitable respiratory equipment.
- **Hand protection** Neoprene gloves
- **Eye protection** Chemical splash goggles and/or face shield if splash hazard exists
- **Skin and body protection** Body covering clothes and boots.

Hygiene measures Do not eat, smoke or drink where material is handled, processed or stored. Wash hands thoroughly after handling and before eating or smoking. Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance	Clear liquid
Odor	Slight
Melting point/range	Not determined
Boiling point/range	Not determined
Flash point	>240°C (>465°F)
Flammable/Explosion limits	Not flammable/Not explosive

ICL Industrial PRODUCTS

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Vapor pressure	7.25x10(-4)Pa (20°C)
Relative density	1.16-1.18 g/mL (25°C)
Solubility:	
- Solubility in water	121 µg/l (20°C) Based on primary component
Partition coefficient (n-octanol/water)	Log Pow = 5.61
Auto-ignition temperature	Not self-ignitable
Viscosity	42-46 cSt. (40°C)
Ignition temperature	593°C (1100°F)
Explosive properties	There are no chemical groups associated with explosive properties present in the molecule
Oxidising properties	The structure indicates non oxidizing properties

10. Stability and reactivity

Stability	Stable under normal conditions
Conditions to avoid	Heating above decomposition temperature
Materials to avoid	Strong oxidizers, strong acids and strong alkalis. It hydrolyzes slowly at normal temperatures in acidic or alkaline aqueous solutions.
Hazardous decomposition products	Phosphorus oxides, Carbon dioxide and carbon monoxide

11. Toxicological information

Note: *The toxicological data refer to a similar product*

Acute toxicity:

- Rat oral LD50	> 5000 mg/kg
- Rabbit dermal LD50	> 2000 mg/kg
- Rat inhalation LC50	> 0.4 mg/l
- Eye irritation (rabbit)	Not irritant
- Dermal irritation (rabbit)	Not irritant

Sub-chronic toxicity:

- NOEL	100 ppm (13 weeks oral rat)

Chronic toxicity No data available

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Mutagenicity	Not mutagenic by the Ames Test and by mouse lymphoma assay. Negative in chromosome aberration and sister chromatid exchange tests in mouse lymphoma cells.
Carcinogenicity	Not classified by IARC Not included in NTP 12th Report on Carcinogens Not classified as a carcinogen by USA OSHA
Reproductive toxicity	Butylated triphenyl phosphate did not demonstrate reproductive toxicity. In a rat reproduction study, male and female animals received either 50, 250 or 1000 mg/kg/day for several weeks after which they mated. There was no reproductive toxicity observed at any dose level. Diagnostic pathology confirmed no alterations to the reproductive organs. There was no effect on mating index, litter size, survival of the offspring or on any other measured parameter.
Teratogenicity	Not teratogenic when administered orally up to 1000 mg/kg
Neurotoxicity	No signs of acute delayed neurotoxicity when administered orally to hens at 23 g/kg

12. Ecological information

Aquatic toxicity :	No effects on aquatic organisms occured at concentrations up to the substances water solubility.
Biodegradation	Readily biodegradable
Bioaccumulative potential	Not bioaccumulative as each component of this multi constituent substance show low potential to bioaccumulate in aquatic organisms.
Note:	Not considered to be PBT or vPvB

13. Disposal considerations

Waste disposal	Observe all federal, state and local environmental regulations when disposing of this material
Disposal of Packaging	Dispose of in a safe manner in accordance with local/national regulations.

14. Transportation information

DOT	Not regulated
IMDG	Not regulated

ICL Industrial PRODUCTS

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Revision date	31/03/2014	**Revision:** 7
Supersedes	21/03/2013	

ICAO/IATA	Not regulated

ICL Industrial PRODUCTS

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)

Product name	**FYRQUEL EHC PLUS**	
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15. Regulatory information

USA	Reported in the EPA TSCA Inventory.
- SARA 313	This product does not contain a chemical listed at or above de minimis concentrations
- Massachusetts Right-to-Know Hazardous Substances list	Listed (Triphenyl phosphate)
- New Jersey Right-to-Know Hazardous Substances list	Listed (Triphenyl phosphate)
- Pennsylvania Right-to-Know Hazardous Substances list	Listed (Triphenyl phosphate)
- Rhode Island Right-to-Know Hazardous Substances list	Listed (Triphenyl phosphate)
- California-Prop 65	This product does not contain any ingredient known to the State of California to cause cancer or reproductive toxicity as listed under the State drinking Water and Toxic Enforcement Act of 1986.
- Waste Classifications	This material does not meet RCRA`s characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40CFR 261.33.
- Workplace Classification	This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200)
Canada	Listed in DSL
-WHMIS hazard class	Non-controlled
EU	Reported in EINECS
EC No.	273-065-8
Japan	Listed in ENCS
Australia	Listed in AICS
New Zealand Inventory	Listed in NZIoC
China	
- China inventory	Listed in IECSC
Korea	Listed in ECL

ICL Industrial PRODUCTS

SAFETY DATA SHEET

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Philippines Listed in PICCS

16. Other information

This data sheet contains changes from the previous version in section(s)
1 (REACH), 2 (US)

Health, Safety & Environment Policy
We will strive to ensure that our operations and products meet the needs of the present global community without compromising the ability of future generations to meet their needs We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources Within the framework of our commitment to the Responsible Care program, we will provide a healthy and safe work environment for employees and will responsibly manage our products at all stages of their life cycle in order to protect human health and the environment whilst maintaining high production standards of operation

TO MEET THIS COMMITMENT WE WILL: Comply with or exceed applicable national and international regulatory requirements and other requirements to which we subscribe Communicate openly and actively encourage dialogue with employees, customers and community concerning our products and operations Implement documented management systems consistent with and for promotion of the Responsible Care ethics

Develop and supply products that can be manufactured, transported, used and disposed of safely whilst best meeting the needs of our customers Regularly assess, continually improve and responsibly manage health, safety and environmental risks associated with products and processes throughout their life-cycles Share knowledge and expertise with others and seek to learn from and incorporate improved practices into our own operations

Educate and train employees, contractors and customers to improve their HSE performance Communicate up-to-date information to enable our workers, customers and other interested parties to handle our products in a safe and environmentally responsible manner Endeavor to work with customers, suppliers, distributors and contractors to foster the safe use, transport and disposal of our chemicals Support Product Stewardship programs in cooperation with customers, distributors and transporters

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ICL-IP America Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its safety and suitability for their purposes prior to use. In no event will ICL-IP America Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE, ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

In an event of discrepancy between the contents of this SDS and the English version of it, the English version shall prevail.

ICL Industrial PRODUCTS

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)

Product name	**FYRQUEL EHC PLUS**	
Product id	7080	
Revision date	31/03/2014	**Revision:** 7
Supersedes	21/03/2013	

Prepared by

HERA Division in ISRAEL
telephone: +/972-8-6297835
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www.icl-ip.com

End of safety data sheet

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL GLYGOYLE 22**
Product Description: Synthetic Base Stocks and Additives
Product Code: 201560505020, 607242-00, 970135
Intended Use: Synthetic lubricants

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
BENZENAMINE, N-PHENYL-, REACTION PRODUCTS WITH 2,4,4-TRIMETHYLPENTENE	68411-46-1	1 - < 5%	H402, H412
OCTANOIC ACID, COMPOUND WITH 1-OCTANAMINE (1:1)	17463-34-2	0.1 - < 1%	H302, H314(1B)
TRIPHENYL PHOSPHATE	115-86-6	0.1 - < 0.25%	H400(M factor 1), H410(M factor 1)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Oxides of carbon, Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >210°C (410°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Material will sink. Remove material, as much as possible, using mechanical equipment.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Remove debris in path of spill prior to oiling and remove contaminated debris from shoreline and water surface and dispose of according to local regulations. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
TRIPHENYL PHOSPHATE		TWA	3 mg/m3		N/A	OSHA Z1
TRIPHENYL PHOSPHATE		TWA	3 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 20 °C): 1.007 [ASTM D1298]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >210°C (410°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: N/D
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa [Estimated]
Vapor Pressure: N/D
Evaporation Rate (n-butyl acetate = 1): N/D

pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 162.5 cSt (162.5 mm2/sec) at 40 °C | 24.5 cSt (24.5 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -30°C (-22°F) [ASTM D97]

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.

Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	96 hour(s)	Pseudokirchneriella subcapitata	ErL50 >101 mg/l: data for similar materials
Aquatic - Acute Toxicity	72 hour(s)	Oncorhynchus mykiss	LL0 100 mg/l: data for similar materials
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EL0 103 mg/l: data for similar materials
Aquatic - Chronic Toxicity	21 day(s)	Daphnia magna	NOELR 1 mg/l: data for similar materials

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

PRODUCT REGISTRATION STATUS: USA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
POLYPROPYLENE GLYCOL	25322-69-4	16

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H302: Harmful if swallowed; Acute Tox Oral, Cat 4
H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H402: Harmful to aquatic life; Acute Env Tox, Cat 3
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1
H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

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Internal Use Only
MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 2008593XUS (554861)

Royal Purple, Inc.

Material Safety Data Sheet

Date Issued/Revised: February 3, 2014

I.

Product Name: **Synfilm® GT**
Chemical Family: Synthetic based lubricating oil
Use: Lubricant and corrosion inhibitor
Manufacturer: Royal Purple, Inc.
Address: 1 Royal Purple Lane, Porter, Texas 77365 USA
Phone: 281-354-8600 Emergency Phone: 281-354-8600 Fax: 281-354-7600
24 Hour Emergency Numbers USA: 800-424-9300 International: 703-527-3887 (collect calls accepted)

II. Components:

- Base Oil (synthetic) — Synthetic additives with iso-paraffinic diluents.
- The precise composition of this oil is proprietary. A more complete disclosure will be provided to a physician or nurse in the event of a medical emergency.
- All components of this product are listed on the U.S. TSCA inventory.
- This product contains no hazardous substances within the definition of OSHA Regulation 29 CFR 1910.1200.
- Royal Purple certifies that this product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form.

III. Main Hazards / Health Effects:
Eyes: May cause irritation.
Inhalation: Oil mist may line breathing passages with oil making breathing difficult.
Ingestion: May cause diarrhea.
Skin: May irritate the skin after prolonged periods of contact.

IV. First Aid:
Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.
Inhalation: Clear air passage. If respiratory difficulty continues, seek medical help.
Ingestion: Wash out mouth immediately. Do not induce vomiting. Consult physician.
Skin: Wash thoroughly with hand cleanser, followed by soap and water. Contaminated clothing should be dry cleaned before reuse.

V. Extinguishing Media:
Suitable: Foam, dry powder, Halon®, carbon dioxide, sand, earth and water mist.
Unsuitable: Water jet.
Protective Equipment for Fire Fighting: Self-contained breathing apparatus.

VI. Accidental Release Measures:
Personal Precautions: Wear gloves and protective overalls.
Environmental Precautions: Do not allow it to enter drains.
Spillage: Contain spill and keep from entering waterways. Absorb on porous material. Large quantities can be pumped.

VII. Handling and Storage:
Handling: No special handling precautions necessary.
Storage: Do not store at elevated temperatures.

VIII. Exposure Control / Personal Protection:
Respiratory Protection: Hydrocarbon absorbing respirator if misting.
Hand Protection: Oil-proof gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to parts in motion.
Body Protection: Overalls.

IX. Physical and Chemical Properties:

Physical State: Liquid	Evaporation Rate (Butyl Acetate = 1): Negligible
Color: Purple	Vapor Pressure (kPa): <0.1
Odor: Lube Oil	Percent Volatiles: None
pH: Neutral	Density (g/cm³): >0.82
Boiling Range / Point °F (°C): >700 (>371)	Flammability: Not flammable at ambient temp.
Pour Point °F (°C): -38 (-39)	OAR Value: UN
Flash Point (COC) °F (°C): >350 (>177)	Oxidizing Properties: None
Autoignition Temperature °F (°C): >600 (>315)	Water Solubility: Insoluble
	Vapor Density: Greater than air

X. Stability and Reactivity:

Stability: Chemically stable under normal conditions. No photoreactive agents.
Conditions to Avoid: Powerful sources of ignition and extreme temperatures.
Materials to Avoid: Strong inorganic and organic acids, oxidizing agents.
Hazardous Decomposition Products: Burning generates smoke, airborne soot, hydrocarbons and oxides of carbon, sulfur and nitrogen. Residue mainly comprised of soot and mineral oxides.

XI. Toxicological Information:

Acute Toxicity: Not known
Irritancy-Skin: Very mild
Skin Sensitization: Not known
Subacute / Sub-chronic Toxicity: Not known
Genotoxicity: None known
Chronic Toxicity: None known

California Prop 65: N/A
Carcinogen: NTP: No
IARC: No
OSHA: No
EC Classification (67 / 548 / EEC): No
LD-50: >2000mg/kg - extrapolated from component data
LC-50: Not applicable

XII. Ecological Information:

Possible Effects: When released into the environment, adsorption to sediment and soil will be the predominant behavior.
Behavior: Relatively well behaved. Bioaccumulation potential nil.
Environmental Fate: Due to its fluid nature and specific gravity, this product will float or spread across water making it a nuisance contaminant. It is not thought to be toxic to marine or land organisms.

XIII. Waste and Container Disposal:

Waste Disposal: Consider recycling. This product, as sold, does not meet the RCRA characteristics of a hazardous waste. Under RCRA, it is the responsibility of the user, at the time of disposal, to determine whether the product meets the RCRA criteria for hazardous waste. Contact a waste disposal company or local authority for advice.
Container Disposal: See waste disposal section listed above.

XIV. Transport Information:

DOT: Nonhazardous
UN No.: N/A
DOT: Nonhazardous

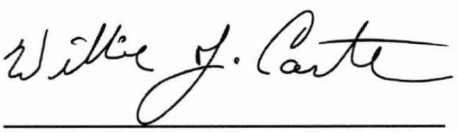
Air Transport (ICAO, IATA): Bulk Nonhazardous
Sea Transport (IMO, IMDG): Bulk Nonhazardous
Road and Rail Transport (ADR / RID): Bulk Nonhazardous

XV. Regulatory Information:

Labeling Information: None needed
EC Annex 1 Class.: N/A
R Phrases: N/A
SARA 311 / 312: None
S Phrases: S-3 keep cool, S-16 keep away from ignition sources
Ozone Depleting Chemicals: N/A

CERCLA: Nonhazardous
TSCA: All components are listed
WHMIS (Canada): Not regulated
Canadian DSL: All components are listed
40 CFR Part 372 (SARA Section 313): N/A
RCRA Hazard Class: Nonhazardous
TSCA 12B Components: None

XVI. Other Information:

Signature: 

Prepared By: W. J. Carter, Ph.D.

Date Issued/Revised: February 3, 2014

LEGEND

I.	Identification of the Substance / Preparation and Company
II.	Composition Information on Ingredients
III.	Hazards Identification
IV.	First Aid Measures
V.	Fire Fighting Measures
VI.	Accidental Release Measures
VII.	Handling and Storage
VIII.	Exposure Control / Personal Protection
IX.	Physical and Chemical Properties
X.	Stability and Reactivity
XI.	Toxicological Information
XII.	Ecological Information
XIII.	Waste Disposal
XIV.	Transport Information
XV.	Regulatory Information
XVI.	Other Information

NFPA SYMBOL

HMIS SYMBOL

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0
PPI	B

Royal Purple, Inc.

Material Safety Data Sheet

I. Product Name: **Synergy®** Date Issued/Revised: February 03, 2014
Chemical Family: Synthetic based lubricating oil
Use: Lubricant and corrosion inhibitor
Manufacturer: Royal Purple, Inc.
Address: 1 Royal Purple Lane, Porter, Texas 77365 USA
Phone: 281-354-8600 Emergency Phone: 281-354-8600 Fax: 281-354-7600
24 Hour Emergency Numbers USA: 800-424-9300 International: 703-527-3887 (collect calls accepted)

II. Components:
- Base Oil (synthetic with highly refined mineral oil) — Synthetic additives with iso-paraffinic diluents.
- The precise composition of this oil is proprietary. A more complete disclosure will be provided to a physician or nurse in the event of a medical emergency.
- All components of this product are listed on the U.S. TSCA inventory.
- This product contains no hazardous substances within the definition of OSHA Regulation 29 CFR 1910.1200.
- Royal Purple certifies that this product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form.

III. Main Hazards / Health Effects:
Eyes: May cause irritation.
Inhalation: Oil mist may line breathing passages with oil making breathing difficult.
Ingestion: May cause diarrhea.
Skin: May irritate the skin after prolonged periods of contact.

IV. First Aid:
Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.
Inhalation: Clear air passage. If respiratory difficulty continues, seek medical help.
Ingestion: Wash out mouth immediately. Do not induce vomiting. Consult physician.
Skin: Wash thoroughly with hand cleanser, followed by soap and water. Contaminated clothing should be dry cleaned before reuse.

V. Extinguishing Media:
Suitable: Foam, dry powder, Halon®, carbon dioxide, sand, earth and water mist.
Unsuitable: Water jet.
Protective Equipment for Fire Fighting: Self-contained breathing apparatus.

VI. Accidental Release Measures:
Personal Precautions: Wear gloves and protective overalls.
Environmental Precautions: Do not allow it to enter drains.
Spillage: Contain spill and keep from entering waterways. Absorb on porous material. Large quantities can be pumped.

VII. Handling and Storage:
Handling: No special handling precautions necessary.
Storage: Do not store at elevated temperatures.

VIII. Exposure Control / Personal Protection:
Respiratory Protection: Hydrocarbon absorbing respirator if misting.
Hand Protection: Oil-proof gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to parts in motion.
Body Protection: Overalls.

IX. Physical and Chemical Properties:
Physical State: Liquid
Color: Purple
Odor: Lube Oil
pH: Neutral
Boiling Range / Point °F (°C): 650-800 (343-427)
Pour Point °F (°C): -24 (-31)
Flash Point (COC) °F (°C): >390 (>199)
Autoignition Temperature °F (°C): >550 (>288)
Evaporation Rate (Butyl Acetate): <0.01
Vapor Pressure (kPa): <0.1
Percent Volatiles: None
Density (g/cm^3): >0.88
Flammability: Not flammable at ambient temp.
OAR Value: UN
Oxidizing Properties: None
Water Solubility: Insoluble
Vapor Density: Greater than air

X. Stability and Reactivity:

Stability: Chemically stable under normal conditions. No photoreactive agents.
Conditions to Avoid: Powerful sources of ignition and extreme temperatures.
Materials to Avoid: Strong inorganic and organic acids, oxidizing agents.
Hazardous Decomposition Products: Burning generates smoke, airborne soot, hydrocarbons and oxides of carbon, sulfur and nitrogen. Residue mainly comprised of soot and mineral oxides.

XI. Toxicological Information:

Acute Toxicity: Not known
Irritancy-Skin: Very mild
Skin Sensitization: Not known
Subacute / Sub-chronic Toxicity: Not known
Genotoxicity: None known
Chronic Toxicity: None known

California Prop 65: N/A
Carcinogen: NTP: No
IARC: No
OSHA: No
EC Classification (67 / 548 / EEC): No
LD-50: >2000mg/kg - extrapolated from component data
LC-50: Not applicable

XII. Ecological Information:

Possible Effects: When released into the environment, adsorption to sediment and soil will be the predominant behavior.
Behavior: Relatively well behaved. Bioaccumulation potential nil.
Environmental Fate: Due to its fluid nature and specific gravity, this product will float or spread across water making it a nuisance contaminant. It is not thought to be toxic to marine or land organisms.

XIII. Waste and Container Disposal:

Waste Disposal: Consider recycling. This product, as sold, does not meet the RCRA characteristics of a hazardous waste. Under RCRA, it is the responsibility of the user, at the time of disposal, to determine whether the product meets the RCRA criteria for hazardous waste. Contact a waste disposal company or local authority for advice.
Container Disposal: See waste disposal section listed above.

XIV. Transport Information:

DOT: Nonhazardous
UN No.: N/A
DOT: Nonhazardous

Air Transport (ICAO, IATA): Bulk Nonhazardous
Sea Transport (IMO, IMDG): Bulk Nonhazardous
Road and Rail Transport (ADR / RID): Bulk Nonhazardous

XV. Regulatory Information:

Labeling Information: None needed
EC Annex 1 Class.: N/A
R Phrases: N/A
SARA 311 / 312: None
S Phrases: S-3 keep cool, S-16 keep away from ignition sources
Ozone Depleting Chemicals: N/A

CERCLA: Nonhazardous
TSCA: All components are listed
WHMIS (Canada): Not regulated
Canadian DSL: All components are listed
40 CFR Part 372 (SARA Section 313): N/A
RCRA Hazard Class: Nonhazardous
TSCA 12B Components: None

XVI. Other Information:

Signature: Willie J. Carter

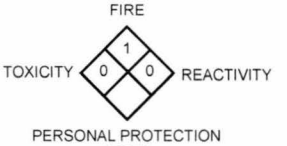
Prepared By: W. J. Carter, Ph.D.

Date Issued/Revised: February 03, 2014

LEGEND

I.	Identification of the Substance / Preparation and Company
II.	Composition Information on Ingredients
III.	Hazards Identification
IV.	First Aid Measures
V.	Fire Fighting Measures
VI.	Accidental Release Measures
VII.	Handling and Storage
VIII.	Exposure Control / Personal Protection
IX.	Physical and Chemical Properties
X.	Stability and Reactivity
XI.	Toxicological Information
XII.	Ecological Information
XIII.	Waste Disposal
XIV.	Transport Information
XV.	Regulatory Information
XVI.	Other Information

NFPA SYMBOL



HMIS SYMBOL

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0
PPI	B

The Lubrication Reliability Source™

SAFETY DATA SHEET

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name 1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Identified uses Lubricant

Details of the supplier of the safety data sheet

Manufacturer
Lubrication Engineers Inc.
300 Bailey Avenue
Fort Worth, TX 76107
USA
(817) 916-3200

Emergency telephone number

CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

Emergency Overview

Signal Word
None

The product contains no substances which at their given concentration, are considered to be hazardous to health

appearance red **Physical state** Paste **Odor** Hydrocarbon-like

Precautionary Statements - Prevention
None.
Response
None.
Eyes
None.
Skin
None.
Inhalation
None.
Ingestion
None.
Fire
None.
Spill
None.
Storage
None.
Disposal
None.

Hazards not otherwise classified (HNOC)

None

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Diacetone alcohol	123-42-2	1 - 5
Butylated Hydroxy Toluene	128-37-0	0.1 - 1

The producer of "1250" declares that it contains less than 3% DMSO extractable material by IP-346

4. FIRST AID MEASURES

First Aid Measures

General Advice If symptoms develop move victim to fresh air. Show this safety data sheet to the doctor in attendance. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin Contact Consult a physician if necessary. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Consult a physician. If not breathing, give artificial respiration.

Ingestion May cause adverse kidney effects. Drink plenty of water. Do NOT induce vomiting.

Protection of First-aiders Use personal protective equipment.

Most important symptoms and effects, both acute and delayed

Symptoms None known.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

5. FIRE-FIGHTING MEASURES

Flash Point 287 °C / 550 °F

Suitable Extinguishing Media Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical Thermal decomposition can lead to release of irritating gases and vapors.

Explosion Data
Sensitivity to Mechanical Impact Not impact sensitive.
Sensitivity to Static Discharge May be ignited by friction, heat, sparks or flames.

Protective Equipment and Precautions for Firefighters Wear self-contained breathing apparatus and protective suit.

NFPA **Health Hazard** 1 **Flammability** 1 **Instability** 1

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Do not touch or walk through spilled material. Remove all sources of ignition.

Environmental Precautions

Environmental Precautions Prevent entry into waterways, sewers, basements or confined areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Methods for Cleaning up Use personal protective equipment. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly.

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Prevent vapor buildup by providing adequate ventilation during and after use. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products. Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Diacetone alcohol 123-42-2	TWA: 50 ppm	TWA: 50 ppm TWA: 240 mg/m³ (vacated) TWA: 50 ppm (vacated) TWA: 240 mg/m³	IDLH: 1800 ppm TWA: 50 ppm TWA: 240 mg/m³
Butylated Hydroxy Toluene 128-37-0	TWA: 2 mg/m³	(vacated) TWA: 10 mg/m³	TWA: 10 mg/m³

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Tightly fitting safety goggles.

Skin and Body Protection Long sleeved clothing. Protective gloves.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Paste
appearance	red
Odor	Hydrocarbon-like
Odor Threshold	No information available

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

pH	6 - 8
Melting point/freezing point	No data available
Boiling Point/Range	no data available
Flash Point	287 °C / 550 °F
Vapor pressure	No data available
Vapor Density	< 1 (Air = 1)
Specific Gravity	0.95
Water solubility	negligible
Partition Coefficient: n-octanol/water	no data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity, kinematic	not applicable

10. STABILITY AND REACTIVITY

reactivity No information available

Chemical stability Stable under recommended storage conditions.

Possibility of Hazardous Reactions None under normal processing.

Conditions to Avoid Heat, flames and sparks. Contact with other chemicals

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information Product does not present an acute toxicity hazard based on known or supplied information

Inhalation May cause irritation of respiratory tract.

Eye Contact Contact with eyes may cause irritation.

Skin Contact May cause irritation.

Ingestion There is no data available for this product.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Diacetone alcohol 123-42-2	= 4 g/kg (Rat)	= 13500 mg/kg (Rabbit)	-
Butylated Hydroxy Toluene 128-37-0	= 890 mg/kg (Rat)	-	-

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

The producer of "1250" declares that it contains less than 3% DMSO extractable material by IP-346

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

Target Organ Effects Skin, Central nervous system (CNS), Respiratory system, Eyes, Liver.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 5071 mg/kg
ATEmix (dermal) 6032 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	N/A	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to daphnia and other aquatic invertebrates
Diacetone alcohol 123-42-2	-	LC50= 420 mg/L Lepomis macrochirus 96 h	-	EC50 = 8750 mg/L 24 h
Butylated Hydroxy Toluene 128-37-0	EC50 = 6 mg/L 72 h EC50 > 0.42 mg/L 72 h	-	-	-

Persistence and Degradability No information available.

Bioaccumulation No information available.

Mobility The product is insoluble and floats on water.

Chemical Name	Log Pow
Diacetone alcohol 123-42-2	1.03
Butylated Hydroxy Toluene 128-37-0	4.17

Other Adverse Effects No information available.

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated Packaging Do not re-use empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
NDSL	Not determined
EINECS	Not determined
ELINCS	Not determined
ENCS	Not determined
IECSC	Complies
KECL	Not determined
PICCS	Complies
AICS	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SDS: 1250

1250 ALMASOL® HIGH TEMPERATURE LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 04-11-2013 **Revision Number** 6

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material does not contain any components with a CERCLA RQ.

U.S. State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:

Chemical Name	California Prop. 65
Silica, quartz - 14808-60-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Diacetone alcohol 123-42-2	X	X	X
Butylated Hydroxy Toluene 128-37-0	X	X	X

16. OTHER INFORMATION

Issuing Date	04-24-2012
Revision Date	04-11-2013
Reason for revision	No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

The Lubrication Reliability Source™

SAFETY DATA SHEET

SDS: 1605

1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 01-19-2017 **Revision Number** 7

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name 1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Identified uses Lubricant

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Manufacturer
Lubrication Engineers Inc.
300 Bailey Avenue
Fort Worth, TX 76107
USA
(817) 916-3200

Emergency Telephone Number

CHEMTREC: 1-800-424-9300 (NORTH AMERICA)
+1-703-527-3887 (INTERNATIONAL)

SDS: 1605

1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 01-19-2017 **Revision Number** 7

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

Emergency Overview

Signal Word
None

Hazard Statements
None

The product contains no substances which at their given concentration, are considered to be hazardous to health

appearance purple **Physical state** liquid **Odor** Hydrocarbon-like

Precautionary Statements - Prevention
None.
Response
None.
Eyes
None.
Skin
None.
Inhalation
None.
Ingestion
None.
Fire
None.
Spill
None.
Storage
None.
Disposal
None.

Hazards not otherwise classified (HNOC)
None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Amines, C12-14-alkyl, reaction products	91745-46-9	1 - 5

The producer of "1605" declares that it contains less than 3% DMSO extractable material by IP-346

SDS: 1605

1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 01-19-2017 **Revision Number** 7

4. FIRST AID MEASURES

First Aid Measures

General Advice If symptoms develop move victim to fresh air. Show this safety data sheet to the doctor in attendance. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin Contact Consult a physician if necessary. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Consult a physician. If not breathing, give artificial respiration.

Ingestion May cause adverse kidney effects. Drink plenty of water. Do NOT induce vomiting.

Protection of First-aiders Use personal protective equipment.

Most important symptoms and effects, both acute and delayed

Symptoms None known.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point 210 °C / 410 °F

Suitable Extinguishing Media Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical Thermal decomposition can lead to release of irritating gases and vapors.

Explosion Data
Sensitivity to Mechanical Impact Not impact sensitive.
Sensitivity to Static Discharge May be ignited by friction, heat, sparks or flames.

Protective Equipment and Precautions for Firefighters Wear self-contained breathing apparatus and protective suit.

NFPA **Health hazard** 1 **Flammability** 1 **Stability** 1

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Do not touch or walk through spilled material. Remove all sources of ignition.

Environmental Precautions

Environmental Precautions Prevent entry into waterways, sewers, basements or confined areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Methods for Cleaning up Use personal protective equipment. Dam up. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Prevent vapor buildup by providing adequate ventilation during and after use. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products. Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Mineral Oil 8042-47-5	TWA: 5 mg/m³	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³	IDLH: 2500 mg/m³ TWA: 5 mg/m³ STEL: 10 mg/m³
White Mineral Oil 8042-47-5	TWA: 5 mg/m³	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³	IDLH: 2500 mg/m³ TWA: 5 mg/m³ STEL: 10 mg/m³

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Tightly fitting safety goggles.

Skin and Body Protection Long sleeved clothing. Protective gloves.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

SDS: 1605

1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 01-19-2017 **Revision Number** 7

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	liquid
appearance	purple
Odor	Hydrocarbon-like
Odor threshold	No information available

Property	**Property**
pH	6 - 8
Melting point/freezing point	No data available
Boiling Point/Range	no data available
Flash Point	210 °C / 410 °F
Vapor pressure	No data available
Vapor Density	< 1 (Air = 1)
Specific Gravity	0.89
Water solubility	negligible
Partition Coefficient: n-octanol/water	no data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity, kinematic	229 cSt @ 40°C

10. STABILITY AND REACTIVITY

reactivity No information available

Chemical stability Stable under recommended storage conditions.

Possibility of Hazardous Reactions None under normal processing.

Conditions to Avoid Heat, flames and sparks. Contact with other chemicals

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information Product does not present an acute toxicity hazard based on known or supplied information

Inhalation May cause irritation of respiratory tract.

Eye Contact Contact with eyes may cause irritation.

Skin Contact May cause irritation.

Ingestion There is no data available for this product.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation

Amines, C12-14-alkyl, reaction products 91745-46-9	> 10000 mg/kg (Rat)	-	-

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

The producer of "1605" declares that it contains less than 3% DMSO extractable material by IP-346

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Reproductive toxicity No information available.

Target Organ Effects Respiratory system, Eyes, Skin.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 4933 mg/kg
ATEmix (dermal) 257347 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to daphnia and other aquatic invertebrates
Amines, C12-14-alkyl, reaction products 91745-46-9	-	LC50 16 - 26 mg/L Pimephales promelas 96 h	-	LC50 < 1 mg/L 96 h

Persistence and Degradability No information available.

Bioaccumulation

Mobility The product is insoluble and floats on water.

Chemical Name	Log Pow
Mineral Oil 8042-47-5	>6
White Mineral Oil 8042-47-5	>6
Naphtha (petroleum), heavy aromatic 64742-94-5	2.9 - 6.1

Other Adverse Effects No information available

SDS: 1605

1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 01-19-2017 **Revision Number** 7

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated Packaging Do not re-use empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Not determined
NDSL	Not determined
EINECS	Not determined
ELINCS	Not determined
ENCS	Not determined
IECSC	Not determined
KECL	Not determined
PICCS	Not determined
AICS	Not determined

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SDS: 1605

1605 DUOLEC® VARI-PURPOSE GEAR LUBRICANT

Issuing Date 04-24-2012 **Revision Date** 01-19-2017 **Revision Number** 7

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material does not contain any components with a CERCLA RQ.

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Petroleum distillates, hydrotreated light naphthenic 64742-53-6		X	

16. OTHER INFORMATION

Issuing Date	04-24-2012
Revision Date	01-19-2017
Reason for revision	Change to composition.

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SDS is available at www.LElubricants.com

End of Safety Data Sheet

LUBRICATION ENGINEERS, Inc.
The Lubrication Reliability Source™

SAFETY DATA SHEET

SDS: 6260

6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name 6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Identified uses Lubricant

Details of the supplier of the safety data sheet

Manufacturer
Lubrication Engineers Inc.
300 Bailey Avenue
Fort Worth, TX 76107
USA
(817) 916-3200

Emergency telephone number

CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

SDS: 6260

6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

Emergency Overview

Signal Word
None

The product contains no substances which at their given concentration, are considered to be hazardous to health

appearance red **Physical state** liquid **Odor** Hydrocarbon-like

Precautionary Statements - Prevention
None.
Response
None.
Eyes
None.
Skin
None.
Inhalation
None.
Ingestion
None.
Fire
None.
Spill
None.
Storage
None.
Disposal
None.

Hazards not otherwise classified (HNOC)
None

3. COMPOSITION/INFORMATION ON INGREDIENTS

The producer of "6260" declares that it contains less than 3% DMSO extractable material by IP-346

SDS: 6260

6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

4. FIRST AID MEASURES

First Aid Measures

General Advice If symptoms develop move victim to fresh air. Show this safety data sheet to the doctor in attendance. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin Contact Consult a physician if necessary. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Consult a physician. If not breathing, give artificial respiration.

Ingestion May cause adverse kidney effects. Drink plenty of water. Do NOT induce vomiting.

Protection of First-aiders Use personal protective equipment.

Most important symptoms and effects, both acute and delayed

Symptoms None known.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point 221 °C / 430 °F

Suitable Extinguishing Media Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical Thermal decomposition can lead to release of irritating gases and vapors.

Explosion Data
Sensitivity to Mechanical Impact Not impact sensitive.
Sensitivity to Static Discharge May be ignited by friction, heat, sparks or flames.

Protective Equipment and Precautions for Firefighters Wear self-contained breathing apparatus and protective suit.

NFPA **Health Hazard** 1 **Flammability** 1 **Instability** 1

SDS: 6260

6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Do not touch or walk through spilled material. Remove all sources of ignition.

Environmental Precautions

Environmental Precautions Prevent entry into waterways, sewers, basements or confined areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Methods for Cleaning up Use personal protective equipment. Dam up. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Prevent vapor buildup by providing adequate ventilation during and after use. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products. Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
White Mineral Oil 8042-47-5	TWA: 5 mg/m³	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³	IDLH: 2500 mg/m³ TWA: 5 mg/m³ STEL: 10 mg/m³
Diphenylamine 122-39-4	TWA: 10 mg/m³	(vacated) TWA: 10 mg/m³	TWA: 10 mg/m³

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

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Individual protection measures, such as personal protective equipment

Eye/Face Protection	Tightly fitting safety goggles.
Skin and Body Protection	Long sleeved clothing. Protective gloves.
Respiratory Protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	liquid
appearance	red
Odor	Hydrocarbon-like
Odor Threshold	No information available
pH	6 - 8
Melting point/freezing point	No data available
Boiling Point/Range	no data available
Flash Point	221 °C / 430 °F
Vapor pressure	No data available
Vapor Density	< 1 (Air = 1)
Specific Gravity	0.87
Water solubility	negligible
Partition Coefficient: n-octanol/water	no data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity, kinematic	31.89 cSt @ 40°C

10. STABILITY AND REACTIVITY

reactivity No information available

Chemical stability Stable under recommended storage conditions.

Possibility of Hazardous Reactions None under normal processing.

Conditions to Avoid Heat, flames and sparks. Contact with other chemicals

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)

11. TOXICOLOGICAL INFORMATION

SDS: 6260

6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

Information on likely routes of exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied information
Inhalation	May cause irritation of respiratory tract.
Eye Contact	Contact with eyes may cause irritation.
Skin Contact	May cause irritation.
Ingestion	There is no data available for this product.
Component Information	No information available

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

The producer of "6260" declares that it contains less than 3% DMSO extractable material by IP-346

Sensitization	No information available.
Mutagenic Effects	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
Target Organ Effects	Respiratory system, Eyes, Skin.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	5171 mg/kg
ATEmix (dermal)	6135 mg/kg

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6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

12. ECOLOGICAL INFORMATION

Ecotoxicity No information available

Persistence and Degradability No information available.

Bioaccumulation No information available.

Mobility The product is insoluble and floats on water.

Chemical Name	Log Pow
White Mineral Oil 8042-47-5	>6
Diphenylamine 122-39-4	3.5

Other Adverse Effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated Packaging Do not re-use empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Diphenylamine 122-39-4		Included in waste streams: F039, K083, K104		

This product contains one or more substances that are listed with the State of California as a hazardous waste

Chemical Name	California Hazardous Waste Status
Diphenylamine 122-39-4	Toxic

14. TRANSPORT INFORMATION

DOT Not regulated

SDS: 6260

6260 MONOLEC® CENTRIFUGAL COMPRESSOR OIL

Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Not determined
NDSL	Not determined
EINECS	Not determined
ELINCS	Not determined
ENCS	Not determined
IECSC	Complies
KECL	Not determined
PICCS	Not determined
AICS	Not determined

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Diphenylamine - 122-39-4	122-39-4	0.0122137	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material does not contain any components with a CERCLA RQ.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

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Issuing Date 04-24-2012 **Revision Date** 05-24-2013 **Revision Number** 5

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations

16. OTHER INFORMATION

Issuing Date	04-24-2012
Revision Date	05-24-2013
Reason for revision	No information available

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

The Lubrication Reliability Source™

SAFETY DATA SHEET

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name 6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Identified uses Lubricant

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Manufacturer
Lubrication Engineers Inc.
300 Bailey Avenue
Fort Worth, TX 76107
USA
(817) 916-3200

Emergency Telephone Number

CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

Emergency Overview

Signal Word
None

The product contains no substances which at their given concentration, are considered to be hazardous to health

appearance red **Physical state** liquid **Odor** Hydrocarbon-like

Precautionary Statements - Prevention
None.
Response
None.
Eyes
None.
Skin
None.
Inhalation
None.
Ingestion
None.
Fire
None.
Spill
None.
Storage
None.
Disposal
None.

Hazards not otherwise classified (HNOC)
None

3. COMPOSITION/INFORMATION ON INGREDIENTS

The producer of "6402" declares that it contains less than 3% DMSO extractable material by IP-346

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

4. FIRST AID MEASURES

First Aid Measures

General Advice If symptoms develop move victim to fresh air. Show this safety data sheet to the doctor in attendance. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

Skin Contact Consult a physician if necessary. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Consult a physician. If not breathing, give artificial respiration.

Ingestion May cause adverse kidney effects. Drink plenty of water. Do NOT induce vomiting.

Protection of First-aiders Use personal protective equipment.

Most important symptoms and effects, both acute and delayed

Symptoms None known.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point 215 °C / 420 °F

Suitable Extinguishing Media Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical Thermal decomposition can lead to release of irritating gases and vapors.

Explosion Data
Sensitivity to Mechanical Impact Not impact sensitive.
Sensitivity to Static Discharge May be ignited by friction, heat, sparks or flames.

Protective Equipment and Precautions for Firefighters Wear self-contained breathing apparatus and protective suit.

NFPA **Health hazard** 1 **Flammability** 1 **Instability** 1

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

Personal Precautions Do not touch or walk through spilled material. Remove all sources of ignition.

Environmental Precautions

Environmental Precautions Prevent entry into waterways, sewers, basements or confined areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Methods for Cleaning up Use personal protective equipment. Dam up. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Prevent vapor buildup by providing adequate ventilation during and after use. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Incompatible products. Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
White Mineral Oil 8042-47-5	TWA: 5 mg/m³	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³	IDLH: 2500 mg/m³ TWA: 5 mg/m³ STEL: 10 mg/m³
Calcium Sulfate 7778-18-9	TWA: 10 mg/m³	TWA: 15 mg/m³ TWA: 5 mg/m³ (vacated) TWA: 15 mg/m³ (vacated) TWA: 5 mg/m³	TWA: 10 mg/m³ TWA: 5 mg/m³
Ethyl acrylate 140-88-5	STEL 15 ppm TWA: 5 ppm	TWA: 25 ppm TWA: 100 mg/m³ (vacated) TWA: 5 ppm (vacated) TWA: 20 mg/m³ (vacated) STEL: 25 ppm (vacated) STEL: 100 mg/m³ (vacated) S* S*	IDLH: 300 ppm
Diphenylamine 122-39-4	TWA: 10 mg/m³	(vacated) TWA: 10 mg/m³	TWA: 10 mg/m³

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Tightly fitting safety goggles.

Skin and Body Protection Long sleeved clothing. Protective gloves.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	liquid
appearance	red
Odor	Hydrocarbon-like
Odor threshold	No information available

Property	**Property**
pH	6 - 8
Melting point/freezing point	No data available
Boiling Point/Range	no data available
Flash Point	215 °C / 420 °F
Vapor pressure	No data available
Vapor Density	< 1 (Air = 1)
Specific Gravity	0.87
Water solubility	negligible
Partition Coefficient: n-octanol/water	no data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity, kinematic	45.23 cSt @ 40°C

10. STABILITY AND REACTIVITY

reactivity No information available

Chemical stability Stable under recommended storage conditions.

Possibility of Hazardous Reactions None under normal processing.

Conditions to Avoid Heat, flames and sparks. Contact with other chemicals

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied information
Inhalation	May cause irritation of respiratory tract.
Eye Contact	Contact with eyes may cause irritation.
Skin Contact	May cause irritation.
Ingestion	There is no data available for this product.
Component Information	No information available

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

The producer of "6402" declares that it contains less than 3% DMSO extractable material by IP-346

Sensitization	No information available.
Mutagenic Effects	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
Target Organ Effects	Respiratory system, Eyes, Skin.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	4596 mg/kg
ATEmix (dermal)	5516 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity No information available

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

Persistence and Degradability No information available.

Bioaccumulation

Mobility The product is insoluble and floats on water.

Chemical Name	Log Pow
White Mineral Oil 8042-47-5	>6
2-Ethylhexyl acrylate 103-11-7	4.64
Ethyl acrylate 140-88-5	1.18
Diphenylamine 122-39-4	3.5

Other Adverse Effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated Packaging Do not re-use empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Ethyl acrylate 140-88-5				Ignitable waste
Diphenylamine 122-39-4		Included in waste streams: F039, K083, K104		

Chemical Name	California Hazardous Waste Status
Diphenylamine 122-39-4	Toxic

14. TRANSPORT INFORMATION

DOT Not regulated

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

Issuing Date 04-24-2012 **Revision Date** 04-29-2014 **Revision Number** 5

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Not determined
NDSL	Not determined
EINECS	Not determined
ELINCS	Not determined
ENCS	Not determined
IECSC	Complies
KECL	Not determined
PICCS	Not determined
AICS	Not determined

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Petroleum distillates, solvent-refined heavy paraffinic - 64741-88-4	64741-88-4	90 - 100	
Petroleum distillates, solvent-refined light paraffinic - 64741-89-5	64741-89-5	5 - 10	
Residual oils (petroleum), solvent refined - 64742-01-4	64742-01-4	1 - 5	
Benzeneamine,-N-phenyl-, reaction product with 2,4,4-trimethylpentene and 2-methylpropene - 184378-08-3	184378-08-3	0.1 - 1	
Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, C7-9- - 125643-61-0	125643-61-0	0.1 - 1	
21151 Proprietary Organsulfur-phosphorus Compounds - 9999-99-9	9999-99-9	0.1 - 1	
20095 Alkyl phenol - 9999-99-9	9999-99-9	0.1 - 1	
20095 Petroleum Distilates - 9999-99-9	9999-99-9	0.1 - 1	
White Mineral Oil - 8042-47-5	8042-47-5	< 0.1	
20095 Aryl Amine - 9999-99-9	9999-99-9	< 0.1	
Petroleum distillates, hydrotreated middle - 64742-46-7	64742-46-7	< 0.1	
Calcium long-chain Alkaryl Sulfonate - 115733-10-3	115733-10-3	< 0.1	
Lubricating oils, petroleum, C15-30, hydrotreated neutral oil-based - 72623-86-0	72623-86-0	< 0.1	
Dilauryl Hydrogen Phosphite - 21302-09-0	21302-09-0	< 0.1	
Naphtha (petroleum), hydrotreated heavy - 64742-48-9	64742-48-9	< 0.1	

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21069 Ethanox 4782J - 9999-99-9	9999-99-9	< 0.1	
2-Propenoic acid, ethyl ester, polymer with 2-ethylhexyl 2-propenoate - 26376-86-3	26376-86-3	< 0.1	
Petroleum distillates, hydrotreated light - 64742-47-8	64742-47-8	< 0.1	
20095 Alkaryl Triazole - 9999-99-9	9999-99-9	< 0.1	
Petroleum distillates, hydrotreated light paraffinic - 64742-55-8	64742-55-8	< 0.1	
Petroleum distillates, solvent dewaxed heavy paraffinic - 64742-65-0	64742-65-0	< 0.1	
Petroleum distillates, hydrotreated light naphthenic - 64742-53-6	64742-53-6	< 0.1	
Petroleum distillates, hydrotreated heavy naphthenic - 64742-52-5	64742-52-5	< 0.1	
2-Ethylhexyl acrylate - 103-11-7	103-11-7	< 0.1	
Calcium Sulfate - 7778-18-9	7778-18-9	< 0.1	
Ethyl acrylate - 140-88-5	140-88-5	< 0.1	0.1
Diphenylamine - 122-39-4	122-39-4	< 0.1	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Ethyl acrylate 140-88-5	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name	California Prop. 65
Ethyl acrylate - 140-88-5	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Petroleum distillates, solvent-refined light paraffinic 64741-89-5		X	

SDS: 6402

6402 MONOLEC® R&O COMPRESSOR/TURBINE OIL

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White Mineral Oil 8042-47-5		X	X
Petroleum distillates, hydrotreated light paraffinic 64742-55-8		X	
Petroleum distillates, hydrotreated light naphthenic 64742-53-6		X	
2-Ethylhexyl acrylate 103-11-7	X	X	X
Calcium Sulfate 7778-18-9	X	X	X
Ethyl acrylate 140-88-5	X	X	X
Diphenylamine 122-39-4	X	X	X

16. OTHER INFORMATION

Issuing Date 04-24-2012
Revision Date 04-29-2014
Reason for revision Change to composition.

Disclaimer

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End of Safety Data Sheet