Commonwealth of Kentucky
Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, Kentucky 40602-0615
Telephone: (502) 564-3940
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psc.ky.gov

May 25, 2017

PARTIES OF RECORD

Re: Case No. 2016-00398

Attached is a copy of a memorandum which is being filed in the record of the above-referenced case. If you have any comments you would like to make regarding the contents of the memorandum please do so within five days of receipt of this letter.

If you have any questions, please contact Quang Nguyen, Commission Staff Attorney, at 502-782-2586.

Sincerely,

Talina R. Mathews
Executive Director

QN/ph

Attachments

INTRA-AGENCY MEMORANDUM

KENTUCKY PUBLIC SERVICE COMMISSION

TO: Case File – Case No. 2016-00398

FROM: Quang D. Nguyen, Assistant General Counsel

DATE: May 25, 2017

RE: Informal Conference of May 18, 2017

Pursuant to an Order issued on May 9, 2017, an informal conference ("IC") was held at the Commission's offices in Frankfort, Kentucky, on May 18, 2017. The IC was held at the request of Duke Energy Kentucky, Inc. ("Duke Kentucky") to allow Duke Kentucky to discuss the potential impact, if any, of the Environmental Protection Agency's ("EPA") stay of the Effluent Limitation Guidelines ("ELG") rule on Duke Kentucky's proposed environmental projects in this proceeding. An attendance sheet is attached to this memo.

At the start of the discussion, Duke Kentucky's representatives provided a handout of its presentation. The handout is attached to this memorandum. Duke Kentucky then presented an overview of what it intended to discuss during the IC, providing a summary of the details of its East Bend Generating Station, the Coal Combustion Residuals ("CCR") Rule, the National Pollutant Discharge Elimination System ("NPDES"), and the Kentucky Groundwater assessment plan. Duke Kentucky also provided details on the ELG Rule and noted that steam electric ELG limits are incorporated into NPDES permits. Duke Kentucky informed that a stay was issued by the EPA on April 12, 2017, of the applicability dates of the 2015 amendments, but that all other provisions of the ELG remain in effect. Specifically, Duke Kentucky pointed out that wastewater streams such as FGD blowdown wastewater, and bottom ash transport water could be impacted by the EPA's stay and review of the ELG rule.[1] However, Duke Kentucky states that the projects for which Duke Kentucky is requesting a CPCN in this matter addressing FGD blowdown wastewater and bottom ash transport water are driven by not only the ELG rule but also the CCR rule and, thus, according to Duke Kentucky, those environmental compliance projects are still needed. Duke Kentucky, however, does not believe that the EPA will make any significant revisions to the ELG rule. Duke Kentucky further notes that the proposed closure and repurposing of the ash pond and the water redirection system are driven by the CCR rule, the ELG rule, the NPDES and the Kentucky Groundwater assessment plan.

Duke Kentucky indicated that the ELG rule compliance window is November 1, 2018 through December 31, 2023. Duke Kentucky noted that current groundwater

[1] Duke Kentucky also noted that fly ash transport water and flue gas mercury control water are waste streams that could also be impacted by the ELG stay; however, Duke Kentucky stated that the East Bend Generating Station is already in compliance with the fly ash transport water provision given that the station is converting to a dry transport system and that the flue gas mercury control water provision is not applicable to the East Bend Generating Station.

monitoring efforts shows a strong likelihood that the ash pond will not comply with the groundwater contamination standard and thus will trigger the closure of the ash pond under the CCR rule. Duke Kentucky's plan to close and repurpose the ash pond will allow for compliance of both the CCR rule and the ELG rule. Duke Kentucky notes that it is targeting completion of the ash pond closure and repurposing to comply with the November 1, 2018 compliance date. This schedule will allow Duke Kentucky to take advantage of the spring 2018 planned outage of the East Bend Generating Station and in advance of the April 2019 deadline to apply for a new Kentucky Pollutant Discharge Elimination System permit. Duke Kentucky indicated that a decision by mid-June would permit it to commence with the closure of the ash pond in order to complete the proposed projects by November 2018.

Staff also had several clarifying questions regarding the ranking analysis that was performed by Duke Kentucky regarding the alternatives to the closing the ash pond as well as any economic analysis conducted by Duke Kentucky regarding the evaluation of the water redirection and the repurposing of the ash pond. Duke Kentucky indicated that it would supplement the record to clarify the ranking analysis of the closure option and provide an analysis of the options considered by Duke Kentucky other than the water redirection system and repurposing of the ash pond as proposed.

There being no further discussion, the IC was then adjourned.

Attachments: Sign-in Sheet
Duke Kentucky Presentation

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE COMPANY TO CLOSE THE EAST BEND GENERATION STATION COAL ASH IMPOUNDMENT AND FOR ALL OTHER REQUIRED APPROVALS AND RELIEF	CASE NO. 2016-00398

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May 18, 2017 Informal Conference

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Please sign in:

NAME	REPRESENTING
Quang D. Nguyen	PSC
Rocco D'Ascenzo	Duke Energy Kentucky
Thomas Session	Duke Energy
Greg Cecil	Duke Energy
Tammy Jett	Duke Energy
Joseph Potts	Duke Energy
Gary Cook	Duke Energy
Dave Renner	Duke Energy
Chris Whelan	PSC-FA
John S. Lyons	PSC-DOI

Duke Energy Kentucky, Inc.

Case No. 2016-00389 Technical Conference
May 18, 2017

DUKE ENERGY®

SUMMARY

- Duke Energy Kentucky remains committed to safely closing ash basins across the states we serve.
- There is a need to move forward with pond closure/ repurposing/ water redirect activities to meet critical timelines.
- Current strategy is most cost-effective way of complying with current legal/regulatory requirements.
- Projects chosen as a holistic compliance strategy for CCR, KY groundwater, and NPDES, not just ELG.
- Existing pond is the only waste water treatment system at East Bend.
- While ash ponds were the customary treatment at the time, regulations have driven newer technology.
- Basin will be closed in a way that protects the environment and manages costs for customers.
  - Closure by removal is still preferred strategy for East Bend ash pond.
    - Helps protect groundwater
    - Ash can be relocated to existing landfill
    - Former basin footprint will be converted to a lined wastewater basin to meet KPDES requirements.
    - No suitable alternative location for a new basin because of land availability and proximity to the Ohio River
- Projects will assure compliance with water quality-based effluent limits and ELG limits not affected by the administrative stay;
- KY Groundwater- Concurrence letter from DWM.
- Proceeding under current timeline is most prudent course.
- Compliance work can be completed within existing planned 2018 outage (if approved in time).
- Federal CCR and ELG rules likely to remain in effect and project delay increases costs.

East Bend Generating Station

- Servicing customers since 1981
- Landfills
  - East- 162 acres
  - West -200 acres (once all phases constructed)
  - Disposal of Dry (fly) ash (Poz-o-tec, bottom ash)
- Pond
  - Commissioned 1981
  - 1,844 acre feet
  - Constructed per regulations at the time.
  - Receives bottom ash (sluiced)
  - Treats other waste water streams
    - Coal pile run off
    - Landfill leachate & runoff
    - Cooling Tower Blowdown
    - Low Volume Waste Waters
    - Non-chemical Metal Cleaning
- All waste water streams discharged into Ohio River in compliance with KPDES permit KY 0040444; Department for Environmental Protection- Division of Water. Effective date 11/1/2014.

Coal Combustion Residuals (CCR)

- Published April 17, 2015

- Establishes structural integrity design criteria and requirements for related assessments, including :
  - Periodic structural stability assessments by a qualified professional engineer and periodic safety factor assessments to document that the unit achieves minimum engineering factors of safety;
  - Conducting periodic hazard potential classification assessments to assess the damage that would occur if there was a failure of the CCR surface impoundment;
  - Conducting periodic safety factor assessments to document whether the CCR disposal unit achieves minimum factors of safety;
  - Weekly inspections of the CCR unit and monthly monitoring of unit instrumentation.

- Closure of a CCR unit is triggered in one of three ways:
  1. When a unit fails to meet technical criteria (discovery triggers 6 month compliance timeline):
     - If the CCR unit cannot meet the location criteria or the engineering demonstrations that the unit can still operate safely.
     - If an unlined CCR surface impoundment is found to contaminate groundwater in excess of a groundwater protection standard; and
     - If a CCR surface impoundment cannot demonstrate that it meets the minimum factors of safety regarding structural integrity of the CCR unit.

  2. When a CCR unit receives the known final waste shipment or when the owner or operator removes the known final volume of CCRs from the unit for the purposes of beneficial use. In this case, closure must begin within 30 days of such receipt or volume removal; and

  3. For "idled" units – the rule establishes a presumption that the owner or operator must initiate closure of the CCR unit no later than two years after the most recent receipt of CCRs or any non-CCR waste stream or no later than two years after the most recent date that CCRs were removed from the unit for the purpose of beneficial use, whichever is later.

National Pollutant Discharge Elimination System (NPDES)

- The NPDES permit program, created in 1972 by the Clean Water Act (CWA).
- Addresses water pollution by regulating point source discharges to waters of the United States.
- The Clean Water Act prohibits discharging "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. The permit will contain limits on what can be discharged, monitoring and reporting requirements, and other provisions to ensure that the discharge does not impair water quality or public health. In essence, the permit translates general requirements of the Clean Water Act into specific provisions tailored to the operations of the industry and receiving water.
- Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters.
- The Commonwealth of Kentucky has been authorized by the EPA to issue and enforce permits. Kentucky issues KPDES permits.

Steam Electric Effluent Limitation Guidelines (ELG)

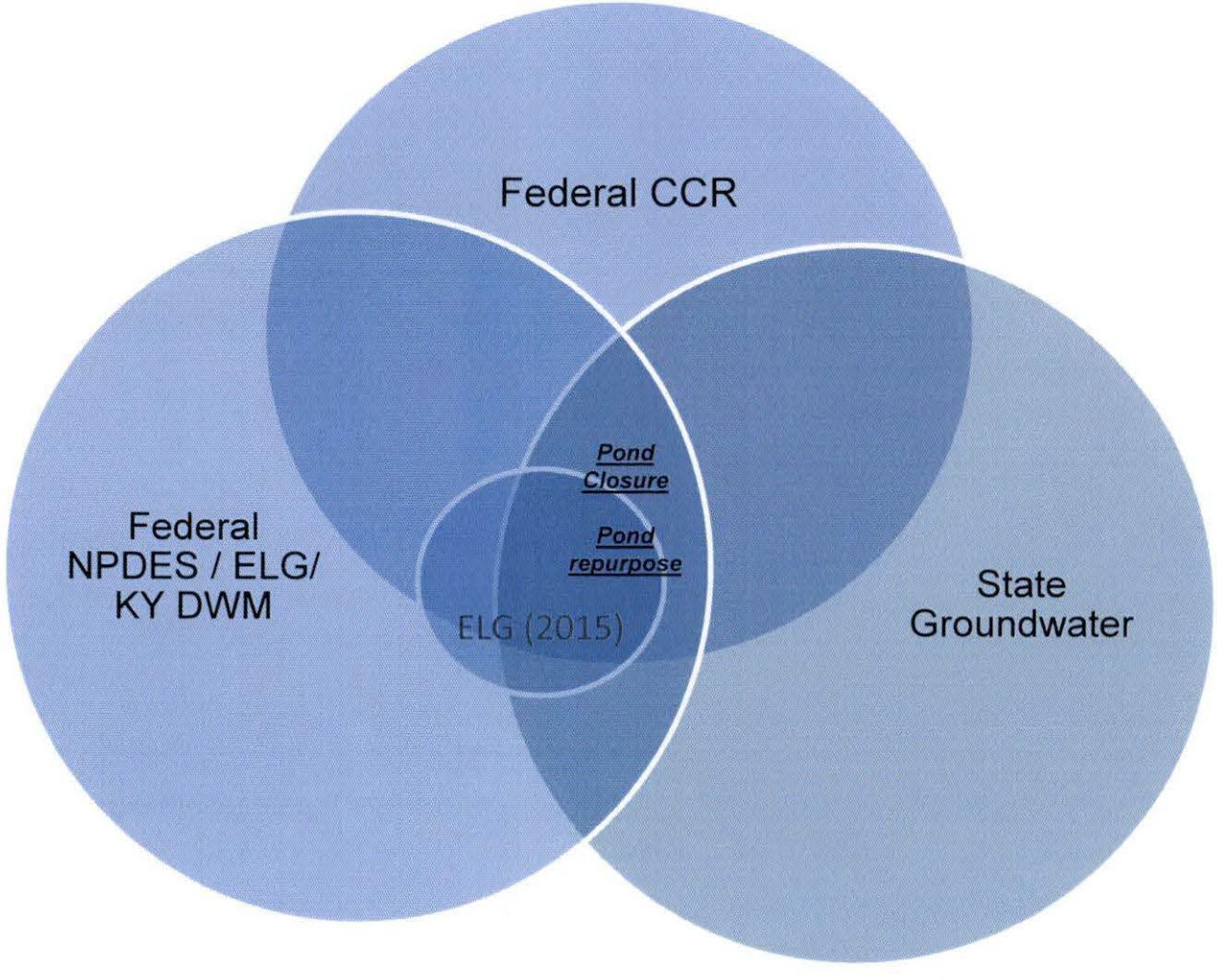
- Part of the 1972 Clean Water Act NPDES
- EPA promulgated the Steam Electric Effluent Limitation Guidelines (40 CFR Part 423) in 1974. Amended in 1977, 1978, 1980, 1982 and 2015.
- Covers wastewater discharges from steam electric power plants generating electricity for distribution and sale.
- Steam Electric ELG limits are incorporated into NPDES permits.
- The November 3, 2015 ELG Amendments set new and revised technology based effluent limits on several wastewater streams that are discharged from power plants.
  - The 2015 Amendments focus was on 5 of the numerous waste water streams typically discharged by coal-fired steam electric plants, that are subject to NPDES permitting.
  - For direct discharges, the Final Rule required compliance "as soon as possible" beginning November 1, 2018 and no later than December 31, 2023.

- April 12, 2017- EPA announced an administrative stay of the applicability dates to the 2015 Amendments.
  - 120 day administrative stay of the applicability dates of the 2015 Amendments;
  - All other sections of ELG remain in effect;
- April 14, 2017 – EPA filed a motion with the 5th Circuit District Court to request an abeyance in the litigation until August 12, 2017 by which time EPA will inform the court of the portions of the rule, if any, EPA intends to reconsider. The motion was granted on April 24, 2017.
- Stay published in Federal Register on April 25, 2017.
- May 3, 2017 – Petitioners filed a suit in the U.S. District Court for the District of Columbia against EPA stating the administrative stay violates the Administrative Procedure Act.

Kentucky Groundwater

- Kentucky Division of Waste Management (DWM) requested a groundwater assessment plan in June 2014 to evaluate groundwater impacts that may be a result of facility operations at East Bend.
- DWM approved the assessment plan.
- Assessment report was submitted to DWM in June of 2016.
  - The report identified ash pond closure as a potential groundwater corrective action to be pursued.
- DWM asked for additional information through Technical Notice of Deficiency (NOD) issued February 2017.
  - Duke Energy Kentucky supplemented information in April 2017.
- Although DWM is in the process of evaluating the NOD response, the final result of the assessment is expected to be, in part, approval of ash pond closure as part of the corrective actions to improve groundwater at the site.

Environmental Drivers For Pond Closure/ Repurposing/ Water redirection



Best Achievable Technology (BAT) Requirements for Steam Electric Compliance

US EPA....Technology based effluent limits (TBEL - 2015 ELG Amendments)

Implementation Range – As soon as possible within 11/1/2018 - 12/31/2023

Waste Stream	East Bend Current Operation	EPA BAT Limits - Avg/Max (Existing Sources)	East Bend Compliance
FGD Blowdown Wastewater*	Blowdown is Fixated with the Poz-O-Tec (Since operation began 1981)	Physical / Chemical + Biological Treatment As – 8/11 ppb Hg – 356/788 ppt NO_2-NO_3 – 4.4/17 ppm Se – 12/23 ppb	Blowdown – No change Fixating the FGD blowdown in the Poz-O-Tec with the Fly Ash since. ELG considers this Zero Discharge of FGD Blowdown. Modification – Add FGD maintenance tank (May 2018) for 100% containment of FGD scrubber slurry during maintenance and emergencies.* Note: FGD Emergency basins taken out of service (Oct 2015)*

Red indicates waste streams whose applicability dates are impacted by the administrative stay. The limits for all other waste streams are effective and are not expected to be revised due to a court or EPA Administrator action.

*Denotes CPCN projects with compliance strategies also driven by CCR Rule.

** Denotes CPCN projects with compliance strategies also driven by NPDES/KY Groundwater regulations.

Waste Stream	East Bend Current Operation	BAT Limits, Avg/Max (Existing Sources)	East Bend Compliance
Fly Ash Transport Water	Fly Ash is Fixated (since 1981)	Zero Discharge	No applicable change – FA is dry transport already
Bottom Ash Transport Water*	Bottom Ash is Sluiced	Zero Discharge	Installing an Under-Boiler Dry Bottom Ash System (May 2018)*
Flue Gas Mercury Control Water	N/A	Zero Discharge	N/A
Leachate**	Leachate flows to the Ash Basin Impoundment	No New Limits Existing BPT Limits Impoundment TSS - 30/100 ppm Oil and Grease - 15/20 ppm	No applicable change – all leachate will flow to the re-purposed impoundment basin. (KPDES 001)**
Metal Cleaning*	Non-chemical metal cleaning flows to the Ash Basin	No New ELG Limits (BPJ) (However CCR's must be collected and cannot be sent to the re-purposed basin.)	Installing a Lined Holding Basin (May 2018) collect & treat CCR's from non-chemical Boiler and ESP outage washes.** Treated effluent will flow to the re-purposed basin. CCR Solids hauled to the on-site landfill. Boiler Chemical cleaning collected for off-site disposal.

Red indicates waste streams whose applicability dates are impacted by the administrative stay. The limits for all other waste streams are effective and are not expected to be revised due to a court or EPA Administrator action.

*Denotes operations/CPCN projects with compliance strategies also driven by CCR Rule.

** Denotes operations/CPCN projects with compliance strategies also driven by NPDES/KY Groundwater regulations.

Waste Stream	East Bend Current Operation	BAT Limits, Avg/Max	East Bend (April 2018)
Low Volume Waste**	Station sumps flow to the Ash Basin & monitored for TSS and pH.	No Change	Modification – Will add polymer, when needed, to boiler sump discharge for TSS control. (June 2017) No change – Demineralizer Sump Both will flow to the re-purposed basin. (KPDES outfall 001)**
Coal Pile Runoff**	Existing KPDES 010 flows to Ash Basin	No Change Existing BPJ = 50 mg/L TSS	Modification – 010 internal outfall will flow to re-purposed basin KPDES outfall 001**
Cooling Tower Overboard**	Existing KPDES 010 flows to Ash Basin	No Change	Modification - 010 Internal outfall will flow to re-purposed basin. KPDES outfall 001**
Sanitary**	Existing KPDES 007 flows to Ash Basin	No Change	No change – Existing KPDES 007 Internal outfall will flow to re-purposed basin KPDES outfall 001**

Red indicates waste streams whose applicability dates are impacted by the administrative stay. The limits for all other waste streams are effective and are not expected to be revised due to a court or EPA Administrator action.

*Denotes operations/CPCN projects with compliance strategies also driven by CCR Rule.

** Denotes operations/CPCN projects with compliance strategies also driven by NPDES/KY Groundwater regulations.

Compliance timeline driving project construction

East Bend KPDES PERMIT

- Current Station KPDES Permit expires October 31, 2019.
- Must apply for new permit by April 2019.
  - Must meet existing KPDES/ELG (and any 2015 not changed) requirements.
  - Requires testing data (4-6 months) to demonstrate compliance.
  - Must have projects in place and completed by January 2019 to begin testing/sampling to support KPDES permit renewal.
    - CCR Compliance date
- Spring 2018 planned outage affords opportunity for timely compliance without additional station outages.

Duke Energy Kentucky's CPCN projects

- Pond closure (excavation) – CCR
  - Eliminates current wet (bottom) ash storage in basin.
  - Groundwater assessment strategy.
  - Further monitoring required.

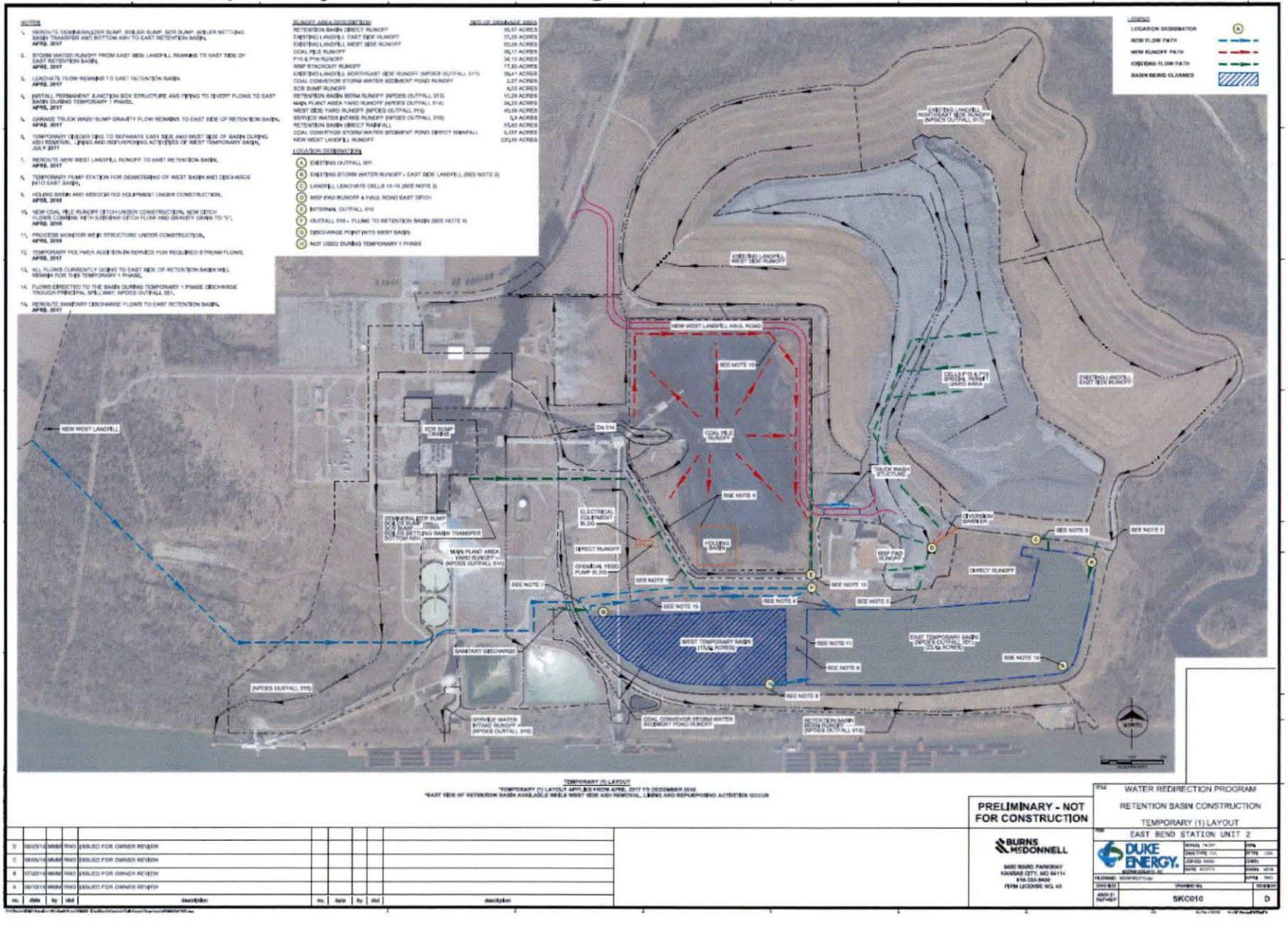
- Pond repurposing and Waste Water Treatment Improvements - CCR/ELG/KPDES
  - Construction of lined East and West basins, for non-CCR waste water streams, cooling tower blowdown, coal pile runoff, landfill leachate & runoff, low volume waste water.
  - Construction of new lined holding basin for collection and treatment of Non-chemical metal cleaning wash water. (Boiler Wash, Air Heater Wash, ESP Wash)
  - Construction of new FGD Maintenance Tank for retention of Scrubber liquids during planned and emergency maintenance.

Duke Energy Kentucky's Compliance Strategy is Unchanged

- Projects remain a holistic compliance strategy for CCR, KY groundwater, and NPDES.
- Proceeding under current timeline is most prudent and cost effective course.
- Existing pond is only waste water treatment system at East Bend.
  - Pond closure is unavoidable.
  - Need new pond (complying) for all other wastewater streams.
- Risks of delay/not timely complying with CCR/KY groundwater, and KPDES:
  - If groundwater protection standard exceeded at statistically significant level, must stop all inputs to pond within 6 months of discovery.
  - 6 months is not sufficient time to close pond and repurpose or construct alternative wastewater system.
  - Would force shutdown of East Bend until station is in full compliance- must take action (costly) to stop all water streams (e.g. runoff) or risk continued violation.
- Closure by removal is still preferred strategy at East Bend.
  - Cap in place is challenging and more expensive at East Bend.
  - Helps protect groundwater
  - Ash can be relocated to existing landfill (cap-in-place requires new landfill permitting and new wastewater basin construction)
  - Former basin footprint will be converted to lined wastewater basin to meet KPDES
  - No suitable alternative location for a new basin on site/ in area because of land availability, location of floodplain, archeological artifacts, and proximity to the Ohio River.

APPENDIX

Temporary 1 Basin Arrangement – April 2017 – Dec 2018



TEMPORARY (1) LAYOUT
*TEMPORARY (1) LAYOUT APPLIES FROM APRIL 2017 TO DECEMBER 2018
*EAST SIDE OF RETENTION BASIN AVAILABLE WHILE WEST SIDE ASH REMOVAL, LINING AND REPURPOSING ACTIVITIES OCCUR

no.	date	by	chkd	description
D	09/25/18	MMM	RHO	ISSUED FOR OWNER REVIEW
C	08/06/18	MMM	RHO	ISSUED FOR OWNER REVIEW
B	07/20/18	MMM	RHO	ISSUED FOR OWNER REVIEW
A	06/13/18	MMM	RHO	ISSUED FOR OWNER REVIEW

PRELIMINARY - NOT FOR CONSTRUCTION

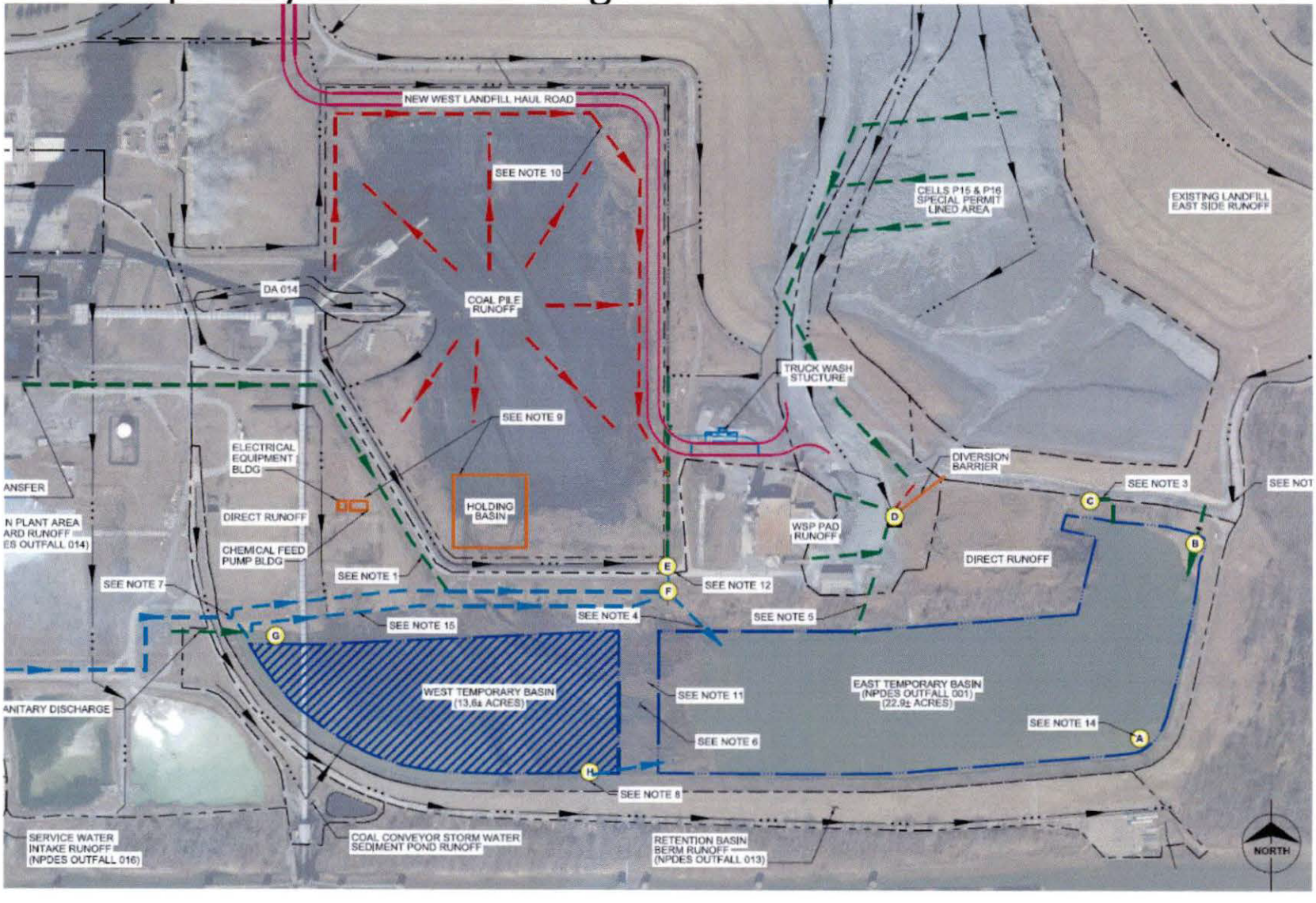
BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
FIRM LICENSE NO. 43

TITLE: WATER REDIRECTION PROGRAM
RETENTION BASIN CONSTRUCTION
TEMPORARY (1) LAYOUT
EAST BEND STATION UNIT 2

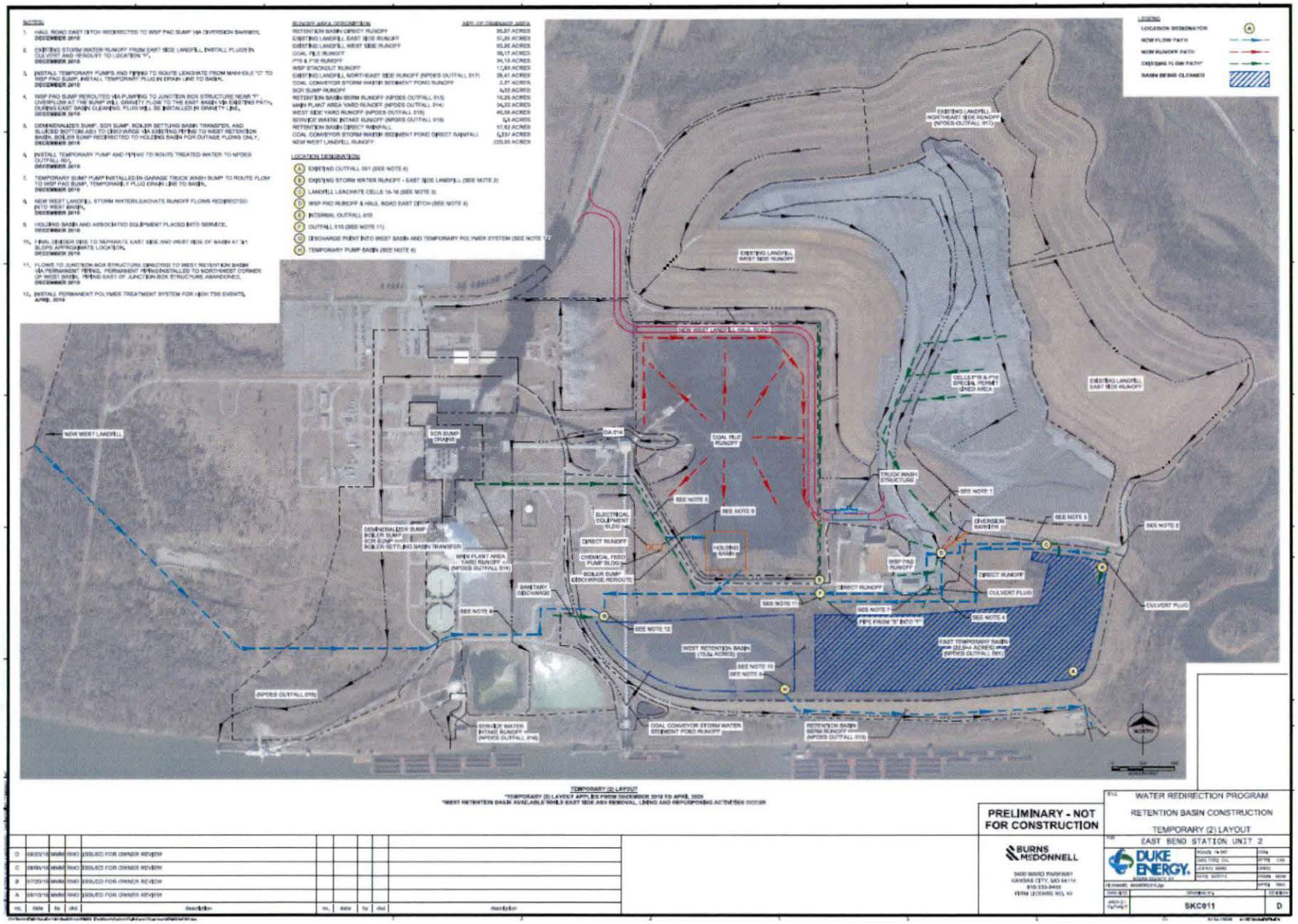
DUKE ENERGY.

DRAWING NO. SKC010
REVISION D

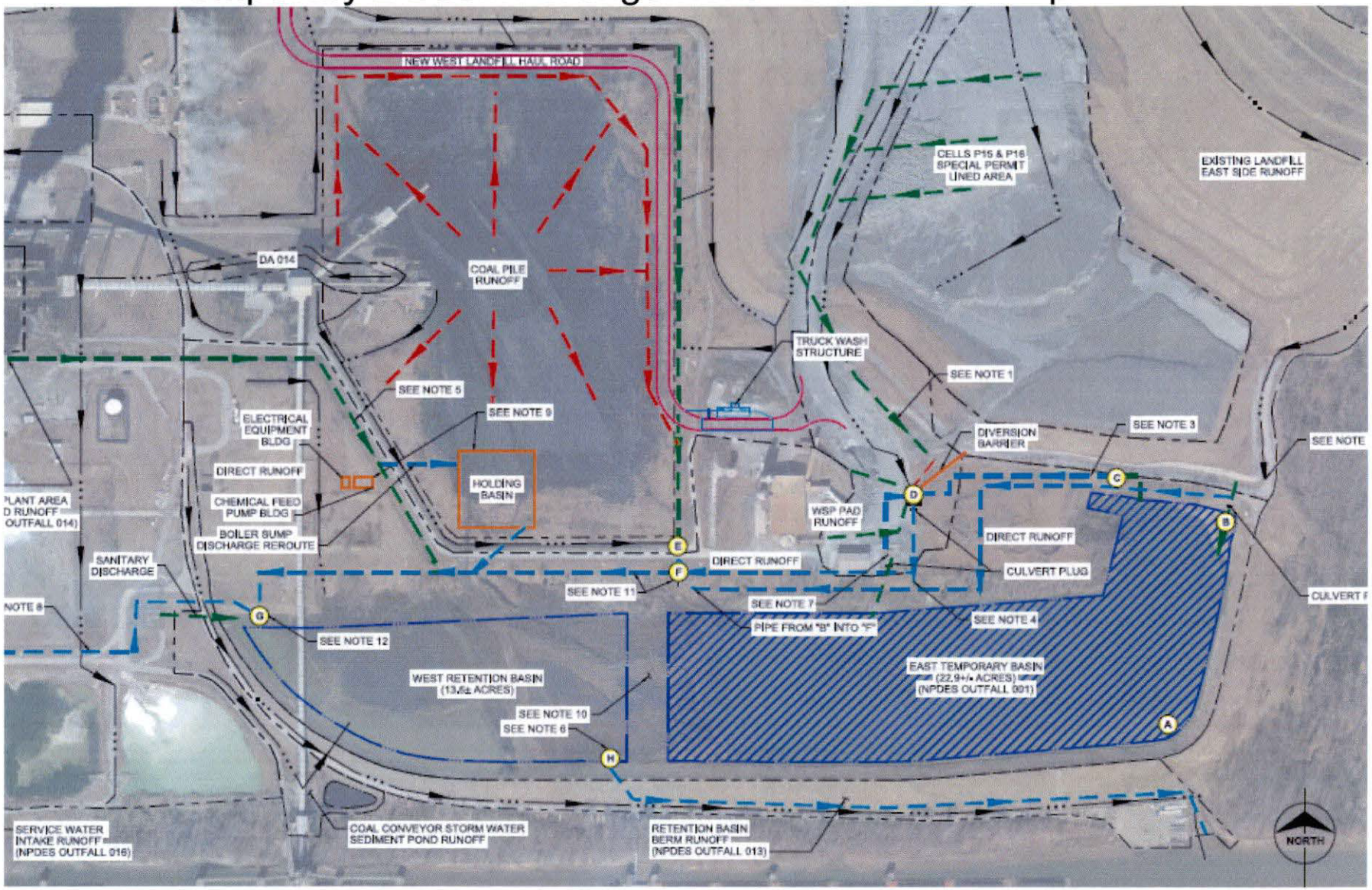
Temporary 1 Basin Arrangement – April 2017 – Dec 2018



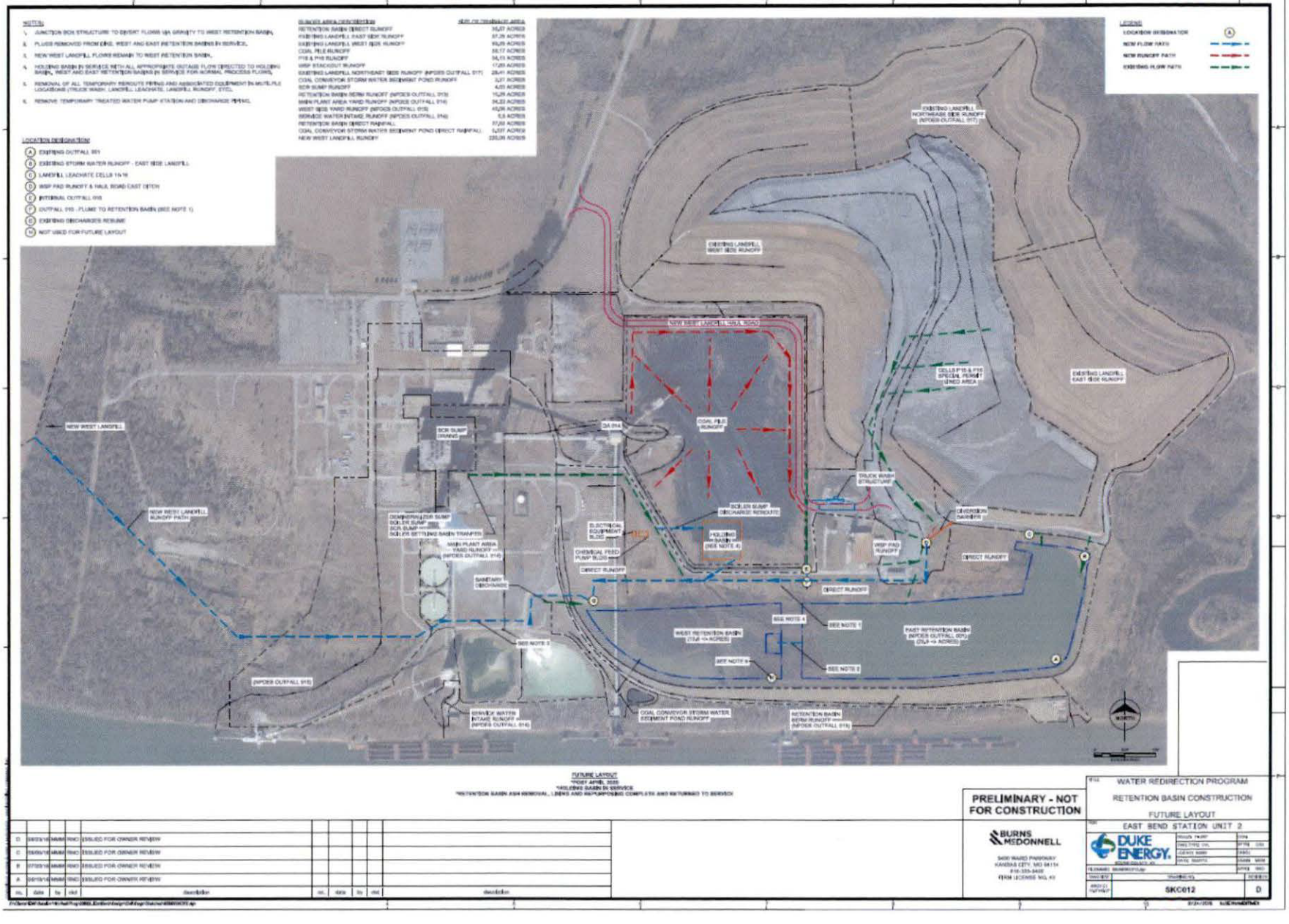
Temporary 2 Basin Arrangement – Dec 2018 – April 2020



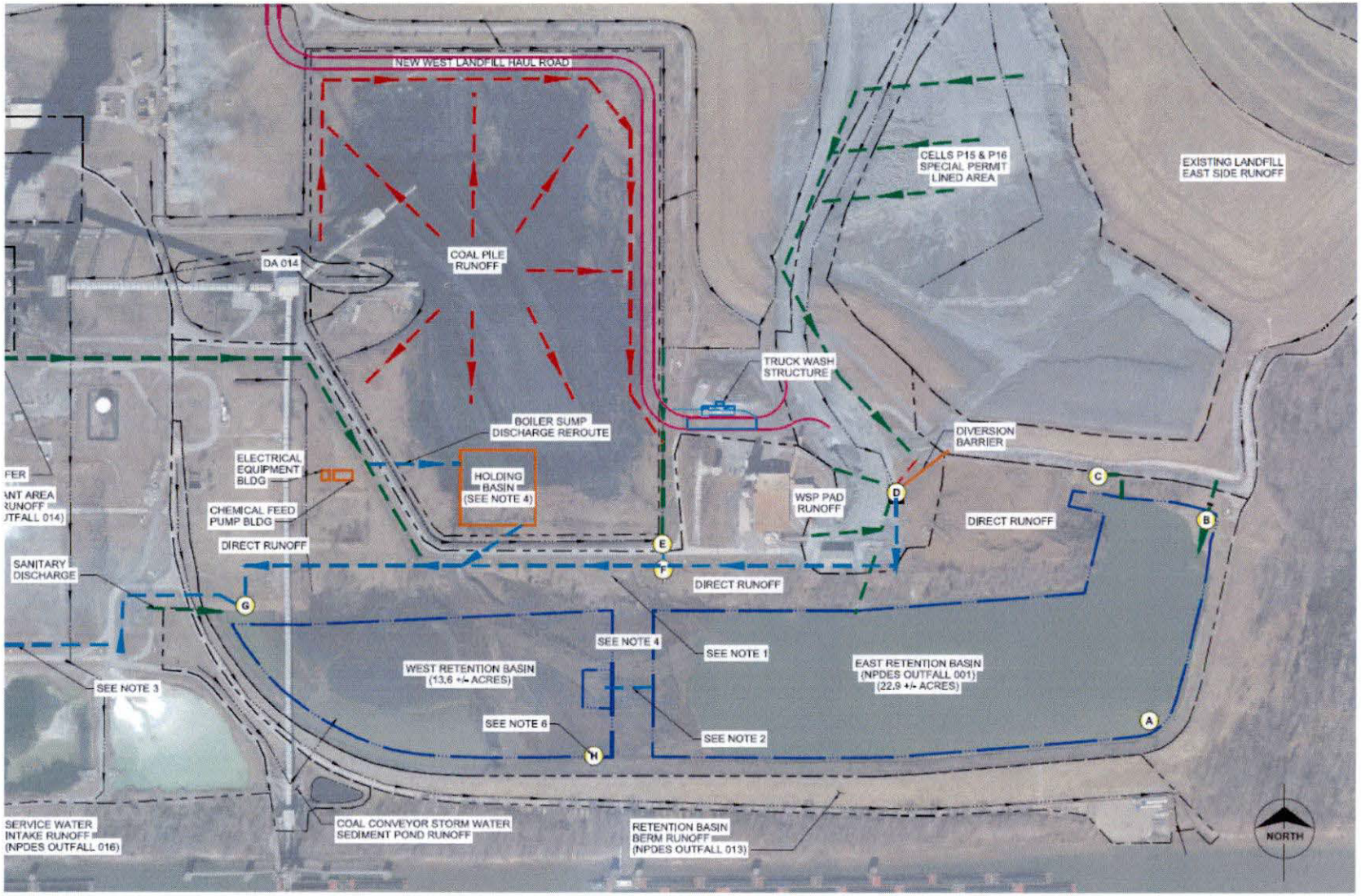
Temporary 2 Basin Arrangement – Dec 2018 – April 2020



Final Retention Basin – April 2020



Final Retention Basin – April 2020



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