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COMMISSION

March 2, 2020

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HAND DELIVERED

Kent A. Chandler
Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602-0615

RE: **Case No. 2012-00578 (Post-Case Correspondence File)**

Dear Mr. Chandler:

Please accept for filing the original and ten copies of Kentucky Power Company's Mitchell Generating Plant Annual Performance Report. The report is being filed in conformity with the Commission's October 7, 2013 order in Case No. 2012-00578.

A copy of the report and this letter is being served on counsel of record in the case.

Very truly yours,


Mark R. Overstreet

MRO

cc: Michael L. Kurtz
Larry W. Cooke
Joe F. Childers
Kristin Henry
Shannon Fisk

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

The Application Of Kentucky Power Company For:)
(1) A Certificate Of Public Convenience And Necessity)
Authorizing The Transfer To The Company Of An)
Undivided Fifty Percent Interest In The Mitchell)
Generating Station And Associated Assets; (2) Approval)
Of The Assumption By Kentucky Power Company Of)
Certain Liabilities In Connection With The Transfer Of)
The Mitchell Generating Station; (3) Declaratory Rulings;)
(4) Deferral Of Costs Incurred In Connection With The)
Company's Efforts To Meet Federal Clean Air Act And)
Related Requirements; And (5) For All Other Required)
Approvals And Relief)

Case No. 2012-00578

MITCHELL GENERATING PLANT: MARCH 1, 2020 ANNUAL PERFORMANCE
REPORT AND REPORT ON POTENTIAL IMPACTS OF FUTURE ENVIRONMENTAL
REGULATIONS

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1) **Introduction**

Kentucky Power Company files this report in conformity with the Kentucky Public Service Commission's October 7, 2013 Order in Case No. 2012-00578. Portions of the required information are provided in the following attachments:

Attachment 1: 2019 Plant Performance Data

- i. Forced Outage Rate
- ii. Equivalent Forced Outage Rate ("EFOR")
- iii. Equivalent Availability Factor
- iv. Net Capacity Factor
- v. Net Unit Heat Rate

Attachment 2: 2019 Unplanned Outages

2) **Mitchell Plant Performance**

Attachment 1 to this report includes 2019 performance data for Mitchell Unit 1 and Unit 2. Capacity factors at both units were lower than 2018 due to significant planned and forced outage work. Annual Net Capacity Factors were 35.97% for Unit 1 and 37.78% for Unit 2. The 2019 Equivalent Forced Outage Rate (EFOR) was 13.07% for Unit 1 and 11.10% for Unit 2.

3) **Mitchell Plant Unplanned Outages**

Attachment 2 to this report identifies the unplanned outage events that occurred at Mitchell Units 1 and 2 during the 2019 calendar year. Unplanned outages are those outage events not included on the planned maintenance schedule. Because the planned maintenance schedule is prepared at least a year in advance, any previously unscheduled outage that occurs before the next planned outage is classified as an unplanned outage regardless of whether it is a scheduled maintenance outage or a forced outage. Scheduled maintenance outages are those necessary to conduct any type of predictive, preventive, or corrective maintenance that can only be done when the unit is not operating. These scheduled maintenance outages are distinct from forced outages, which require immediate removal of a unit from service, another outage state, or a reserve shutdown state. Forced outages can result from such conditions as mechanical/electrical/hydraulic control system trips and operator-initiated trips in response to unit alarms.

The longest 2019 forced outage event at Mitchell Unit 1 was due to a precipitator inspection and repair that lasted approximately 13.25 days in December 2019. The longest 2019 forced outage event at Mitchell Unit 2 was due to the repair of heater string valves in a boiler that lasted approximately 14.55 days in April 2019.

4) **Mitchell Plant Operations & Maintenance ("O&M") Expense**

Kentucky Power's share of the 2019 budgeted and actual O&M expenses for the Mitchell Plant, as well as the Company's share of the budgeted O&M expenses for 2020, are included in Table 1 below. The actual Company share of O&M expense in 2019 was \$33.2 million, compared to a budgeted amount of \$27.7 million. This variance is primarily due to an increase cost of scheduled outages.

Kentucky Power's share of the 2020 budgeted O&M expense of \$24.1 million reflects a 12.91% decrease from 2019 budgeted amount and an approximate 27.41% decrease from 2019 actual. Both decreases are mainly due to a reduction of scheduled outages.

Table 1

| Mitchell Plant O&M Expense | | |
|---|---------------------|---------------------|
| 2019 | | 2020 |
| Actuals | Budget | Budget |
| \$33,230,892 | \$27,696,981 | \$24,121,007 |
| NOTES: Totals reflect Kentucky Power's 50% ownership share of the Mitchell Plant. | | |

5) **Mitchell Plant Capital Investments**

Kentucky Power's share of the 2019 actual and budgeted level of capital investment for the Mitchell Plant, as well as the Company's forecasted share of capital investment for 2020, are included in Table 2.

In 2019, the Company's share of capital spending at the Mitchell Plant was approximately \$16.7 million compared to a budget of \$22.9 million. The capital spend in 2019 was less than the budget amount mainly due to a reduction of work on the landfill expansion and the Haul Road relocation expenses. The decrease in the 2020 budget as compared to the 2019 budget is primarily due to a decrease in projected spending for anticipated spending for electrostatic precipitator (ESP) projects and the landfill expansion.

Table 2

| Mitchell Plant Capital Investment | | |
|--|---------------------|---------------------|
| 2019 | | 2020 |
| Actuals | Budget | Budget |
| \$16,703,575 | \$22,909,764 | \$16,450,908 |
| NOTES: | | |
| Totals reflect Kentucky Power’s 50% ownership share of the Mitchell Plant. | | |

6) Discussion of Environmental Regulations and Potential Future Impacts

The Mitchell Plant is subject to air, water, and solid waste regulations. Both units are fully controlled units with respect to air emissions. They are equipped with Electrostatic Precipitators (“ESPs”) for the removal of approximately 99% of Particulate Matter (PM); Selective Catalytic Reduction (“SCR”) systems for reduction of approximately 90% of nitrogen oxide (“NO_x”) emissions; and flue gas desulfurization (“FGD”) systems for the reduction of sulfur dioxide (“SO₂”) emissions by approximately 97%. These systems are instrumental in maintaining compliance with existing air pollution regulations. The Mitchell Plant operates in compliance with all applicable environmental regulations.

Mercury and Air Toxics Standards (“MATS Rule”)

In 2012, the Federal EPA issued a rule addressing a broad range of HAPs from coal and oil-fired power plants. The rule established unit-specific emission rates for units burning coal on a 30-day rolling average basis for mercury, PM (as a surrogate for particles of non-mercury metals) and hydrogen chloride (as a surrogate for acid gases). In addition, the rule proposed work practice standards, such as boiler tune-ups, for controlling emissions of organic HAPs and dioxin/furans. Compliance was required within three years. Management obtained administrative extensions for up to one year at several units to facilitate the installation of controls or to avoid a serious reliability problem.

In 2014, the U.S. Court of Appeals for the District of Columbia Circuit denied all of the petitions for review of the 2012 final rule. Industry trade groups and several states filed petitions for further review in the U.S. Supreme Court.

In 2015, the U.S. Supreme Court reversed the decision of the U.S. Court of Appeals for the District of Columbia Circuit. The court remanded the MATS rule to the Federal EPA to consider costs in determining whether to regulate emissions of HAPs from power plants. In 2016, the Federal EPA issued a supplemental finding concluding that, after considering the costs of compliance, it was appropriate and necessary to regulate HAP emissions from coal and oil-fired units. Petitions for

review of the Federal EPA's determination were filed in the U.S. Court of Appeals for the District of Columbia Circuit. In 2018, the Federal EPA released a revised finding that the costs of reducing HAP emissions to the level in the current rule exceed the benefits of those HAP emission reductions. The Federal EPA also determined that there are no significant changes in control technologies and the remaining risks associated with HAP emissions do not justify any more stringent standards. Therefore, the Federal EPA proposed to retain the current MATS standards without change. A final rule has not yet been issued. The installed Mitchell SCR and FGD systems achieve co-benefit removal of mercury from the flue gas while the ESPs remove particulate bound mercury and other particulate hazardous air pollutants. The FGD systems allow the plant to meet the SO₂ alternate measurement for mitigation of acid gas emissions. These systems enabled the Mitchell Plant to meet the emissions requirements of the MATS Rule in 2019.

Cross-State Air Pollution Rule ("CSAPR")

In 2011, the Federal EPA issued CSAPR as a replacement for the Clean Air Interstate Rule, a regional trading program designed to address interstate transport of emissions that contributed significantly to downwind non-attainment with the 1997 ozone and PM NAAQS. CSAPR relies on SO₂ and NO_x allowances and individual state budgets to compel further emission reductions from electric utility generating units. Interstate trading of allowances is allowed on a restricted sub-regional basis.

Petitions to review the CSAPR were filed in the U.S. Court of Appeals for the District of Columbia Circuit. In 2015, the court found that the Federal EPA over-controlled the SO₂ and/or NO_x budgets of 14 states. The court remanded the rule to the Federal EPA for revision consistent with the court's opinion while CSAPR remained in place.

In 2016, the Federal EPA issued a final rule, the CSAPR Update, to address the remand and to incorporate additional changes necessary to address the 2008 ozone standard. The CSAPR Update significantly reduced ozone season budgets in many states, including Indiana, Kentucky, and West Virginia, and discounted the value of banked CSAPR ozone season allowances beginning with the 2017 ozone season. The rule has been challenged in the courts and petitions for administrative reconsideration have been filed. In 2019, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) remanded the CSAPR Update to the Federal EPA because it determined the Federal EPA had not properly considered the attainment dates for downwind areas in establishing its partial remedy, and should have considered whether there were available measures to control emissions from sources other than generating units. Collectively, the installed Mitchell Plant SCR and FGD systems' respective emission reductions of NO_x and SO₂, the use of allocated NO_x and SO₂ emission allowances in conjunction with adjusted banked allowances, and the purchase of additional allowances as needed through the open market will permit the Mitchell Plant to comply with CSAPR.

Clean Water Act (“316(b)”) Rule

A final rule under Section 316(b) of the Clean Water Act became effective on October 14, 2014. The final rule affects all existing power plants withdrawing more than two million gallons per day (“mgd”) of cooling water. The rule offers seven technology options to comply with a standard that addresses impingement of aquatic organisms on cooling water intake screens, and requires site-specific studies to determine appropriate compliance measures to address entrainment of organisms in cooling water systems for those facilities withdrawing more than 125 mgd. The overall goal of the rule is to decrease impacts on fish and other aquatic organisms from operation of cooling water systems. Additional requirements may be imposed as a result of consultation with other federal agencies to protect threatened and endangered species and their habitats.

Mitchell Plant cooling water withdrawal rate is 31 mgd, and thus is well below the entrainment study threshold of 125 mgd. In addition, facilities with existing closed cycle recirculating cooling systems, such as Mitchell, may not be required to make any technology changes. This determination will be made by the West Virginia Department of Environmental Protection as part of its current renewal review of Mitchell Plant’s National Pollutant Discharge Elimination System permit. If additional capital investment is required, the magnitude is expected to be relatively small compared to the investment that would be needed if the plant was not equipped with cooling towers, and would likely be limited to the installation of flow measurement equipment.

Coal Combustion Residuals Rule

In 2015, the Federal EPA published a final rule to regulate the disposal and beneficial re-use of coal combustion residuals (CCR), including fly ash and bottom ash generated at coal-fired electric generating units and FGD gypsum generated at some coal-fired plants. The rule applies to new and existing active CCR landfills and CCR surface impoundments at operating electric utility or independent power production facilities. The rule imposes construction and operating obligations, including location restrictions, liner criteria, structural integrity requirements for impoundments, operating criteria and additional groundwater monitoring requirements to be implemented on a schedule spanning an approximate four-year implementation period.

The final 2015 rule was challenged in the courts. In 2018, the U.S. Court of Appeals for the District of Columbia Circuit issued its decision vacating and remanding certain provisions of the 2015 rule. Remaining issues were dismissed. The provisions addressed by the Court’s decision, including changes to the provisions for unlined impoundments and legacy sites, will be the subject of further rulemaking consistent with the Court’s decision. Further rulemaking is anticipated near the end of 2019 or early 2020.

Prior to the court’s decision, the Federal EPA issued a final rule in July 2018 that modifies certain compliance deadlines and other requirements in the rule. In December 2018, challengers filed a motion for partial stay or vacatur of the July 2018 rule. On the same day, the Federal EPA filed a motion for partial remand of the July 2018 rule. The court granted Federal EPA’s motion, and further rulemaking to address the court’s decisions is expected to be completed in 2020.

Other utilities and industrial sources have been engaged in litigation with environmental advocacy groups who claim that releases of contaminants from wells, CCR units, pipelines and other facilities to ground waters that have a hydrologic connection to a surface water body represent an “unpermitted discharge” under the Clean Water Act (CWA). Two cases have been accepted by the U.S. Supreme Court for further review of the scope of CWA jurisdiction. The Federal EPA opened a rulemaking docket to solicit information to determine whether it should provide additional clarification of the scope of CWA permitting requirements for discharges to ground water. On April 23, 2019, Federal EPA issued an “Interpretive Statement” considering comments received in the rulemaking docket and determined that “releases to groundwater are excluded from the scope of the National Pollutant Discharge Elimination System (NPDES) program, even where pollutants are conveyed to jurisdictional surface waters via groundwater.”

Installation of a groundwater monitoring network has been completed at the Mitchell Plant and groundwater sampling commenced in late 2016. The eight background sampling events were completed and an analysis of the compliance monitoring data shows Mitchell Plant does not exceed the standards set by the CCR rule. Mitchell Plant currently is equipped with a dry fly ash handling system and a dry ash landfill to meet current permit requirements. The plant also has an unlined bottom ash pond that will be phased out of use as the plant complies with the anticipated requirements for unlined surface impoundments. While the site-specific analysis to determine CCR Rule requirements at Mitchell Plant is ongoing, the existing dry fly ash handling and disposal systems will mitigate the impact of the CCR Rule on the plant’s future compliance costs.

Effluent Limitation Guidelines and Standards

In 2015, the Federal EPA issued a final rule revising effluent limitation guidelines for electricity generating facilities. The rule established limits on FGD wastewater, fly ash and bottom ash transport water and flue gas mercury control wastewater to be imposed as soon as possible after November 2018 and no later than December 2023. These requirements are implemented through each facility’s wastewater discharge permit. The rule was challenged in the U.S. Court of Appeals for the Fifth Circuit. In 2017, the Federal EPA announced its intent to reconsider and potentially revise the standards for FGD wastewater and bottom ash transport water. The Federal EPA postponed the compliance deadlines for those wastewater categories to be no earlier than 2020, to allow for reconsideration. In April 2019, the Fifth Circuit vacated the standards for landfill leachate and legacy wastewater, and remanded them to the Federal EPA for reconsideration. A revised rule for FGD wastewater and bottom ash transport water was proposed in November 2019. Kentucky Power is awaiting the results of this USEPA rulemaking prior to evaluating what, if any impact, any change to the ELG Rule will have on the Mitchell Plant.

National Ambient Air Quality Standards

The Federal EPA issued new, more stringent NAAQS for PM in 2012 and ozone in 2015; both of these standards are currently under review. The existing standards for NO₂ and SO₂ were retained

after review by the Federal EPA in 2018 and 2019, respectively. Implementation of these standards is underway.

In 2020, the Federal EPA completed the final integrated science review and policy assessment for the 2012 PM standard. A proposed rule is anticipated in later in 2020.

The Federal EPA finalized non-attainment designations for the 2015 ozone standard in 2018. The Federal EPA confirmed that the CSAPR program satisfied all interstate transport obligations associated with the 2008 ozone standard, but that finding was reversed by the U.S. Court of Appeals for the D.C. Circuit. That court also remanded the 2015 secondary ozone standard and is reviewing Federal EPA's 2018 rule governing implementation of the 2015 ozone standard. The Federal EPA completed external review drafts of the integrated science assessment and policy assessment for the ozone standard in 2019. Work on completing the review of the 2015 ozone standard is expected to continue in 2020.

Regarding the NAAQS for SO₂, the West Virginia Department of Environmental Protection submitted a nonattainment State Implementation Plan with supporting modeling files, to EPA in late 2016 and provided a revised modeling report in 2019. The State Implementation Plan included a lower SO₂ emission rate for the Mitchell Plant than currently permitted, but still significantly higher than the plant's current emission rate. This lower SO₂ emission rate is currently in effect pursuant to a consent decree with the West Virginia Department of Environmental Protection and is not expected to negatively impact operations. For the remaining revised NAAQS, the scope and timing of potential requirements is uncertain. However, because both units at the Mitchell Plant have already been retrofitted with SCR and FGD systems, the risk from more stringent SO₂ and NO_x limits is expected to be manageable.

Climate Change and CO₂ Regulation

In 2015, the Federal EPA published the final CO₂ emissions standards for new, modified and reconstructed fossil fuel-fired steam generating units and combustion turbines, and final guidelines for the development of state plans to regulate CO₂ emissions from existing sources, known as the Clean Power Plan (CPP).

The final rules were challenged in the courts. In 2016, the U.S. Supreme Court issued a stay on the final CPP, including all of the deadlines for submission of initial or final state plans, until a final decision is issued by the U.S. Court of Appeals for the District of Columbia Circuit and the U.S. Supreme Court considers any petition for review. In 2017, the President issued an Executive Order directing the Federal EPA to reconsider the CPP and the associated standards for new sources. The Federal EPA filed a motion to hold the challenges to the CPP in abeyance, and issued a final rule repealing the CPP in 2019. The cases were then dismissed.

In 2019, the Federal EPA finalized the Affordable Clean Energy (ACE) rule replacing the CPP with new emission guidelines for regulating CO₂ from existing sources. The ACE Rule requires states to evaluate the applicability and effect of implementing specific heat rate improvement

measures at coal-fired generating units, and to develop a standard of performance for each affected unit within their jurisdiction. State plans are due in July 2022. In 2018, the Federal EPA filed a proposed rule revising the standards for new sources and determined that partial carbon capture and storage is not the best system of emission reduction because it is not available throughout the U.S. and is not cost-effective.

Mitchell Generating Plant
Performance Data
2019

KPSC Case No. 2012-00578
 March 1, 2020
 Attachment 1
 Page 1 of 1

Mitchell Unit 1

Net Max Capacity: 770

| Month | Forced Outage Rate (%) | Equiv Forced Outage Rate (%) | Equiv. Avail. Factor (%) | Net Cap. Factor (%) | Heat Rate Actual (BTU/KWH) |
|-------------------|------------------------|------------------------------|--------------------------|---------------------|----------------------------|
| Jan | 0.00 | 0.60 | 99.27 | 73.08 | 10,490 |
| Feb | 11.26 | 12.00 | 87.41 | 61.63 | 5,235 |
| Mar | 13.53 | 13.53 | 22.12 | 16.36 | 11,164 |
| Apr | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| May | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| Jun | 4.65 | 5.35 | 58.00 | 34.69 | 10,507 |
| Jul | 0.57 | 1.06 | 76.22 | 53.32 | 10,809 |
| Aug | 0.00 | 0.15 | 69.97 | 49.54 | 8,892 |
| Sep | 47.26 | 49.11 | 64.29 | 24.35 | 12,442 |
| Oct | 0.00 | 2.61 | 95.85 | 67.79 | 10,383 |
| Nov | 27.55 | 27.94 | 71.60 | 52.33 | 10,107 |
| Dec | 100.00 | 100.00 | 27.38 | 0.00 | 0 |
| YTD Totals | 12.14 | 13.07 | 55.84 | 35.97 | 9,757 |

Mitchell Unit 2

Net Max Capacity: 790

| Month | Forced Outage Rate (%) | Equiv Forced Outage Rate (%) | Equiv. Avail. Factor (%) | Net Cap. Factor (%) | Heat Rate Actual (BTU/KWH) |
|-------------------|------------------------|------------------------------|--------------------------|---------------------|----------------------------|
| Jan | 2.67 | 3.58 | 94.24 | 46.04 | 10,837 |
| Feb | 21.49 | 23.37 | 51.74 | 30.01 | 7,432 |
| Mar | 0.00 | 5.19 | 93.72 | 67.98 | 10,144 |
| Apr | 1.19 | 18.05 | 42.70 | 31.53 | 9,011 |
| May | 0.00 | 2.67 | 97.02 | 63.31 | 10,963 |
| Jun | 0.00 | 14.05 | 46.42 | 32.32 | 11,697 |
| Jul | 4.43 | 18.09 | 66.64 | 48.54 | 11,033 |
| Aug | 0.00 | 1.15 | 77.07 | 48.05 | 7,839 |
| Sep | 0.00 | 15.34 | 83.33 | 65.02 | 10,476 |
| Oct | 0.00 | 26.63 | 6.72 | 5.93 | 12,558 |
| Nov | 0.00 | 0.00 | 4.28 | 0.00 | 0 |
| Dec | 13.26 | 29.55 | 79.46 | 13.28 | 11,817 |
| YTD Totals | 2.81 | 11.10 | 62.21 | 37.78 | 10,176 |

Mitchell Generating Plant
Unplanned Outages
2019

KPSC Case No. 2012-00578
March 1, 2020
Attachment 2
Page 1 of 2

Kentucky Power Company
01/01/2019 To 12/31/2019
Mitchell Unit 1

| Month | From | To | Duration (Hours) | Event Type | Event Description |
|-----------|-------------------|-------------------|------------------|------------|---|
| February | 2/17/19 9:57 PM | 2/18/19 2:31 PM | 16.57 | U1 | Air heater issue |
| February | 2/22/19 2:19 AM | 2/24/19 1:24 PM | 59.08 | U1 | Loss of #11 ID Fan |
| March | 3/3/19 7:07 PM | 3/4/19 9:10 PM | 26.05 | U1 | Issues with pitch blade linkage/Tube Leak |
| June | 6/13/19 2:26 AM | 6/13/19 8:00 PM | 17.57 | U1 | EHC Leak |
| June | 6/14/19 9:00 AM | 6/14/19 9:20 PM | 12.33 | MO | Repair Rupture Diaphragms on main condenser |
| June | 6/30/19 12:54 AM | 7/7/19 10:59 PM | 190.08 | MO | Inspection and repair of River water line, boiler, ID fan, turbine valve, intercept valve, and voltage regulator |
| July | 7/7/19 11:00 PM | 7/8/19 2:10 AM | 3.17 | U1 | Unable to extend previous MO due to market rules, PJM advised to put in a unplanned ticket for previous MO |
| August | 8/22/19 11:21 PM | 8/27/19 11:00 PM | 119.65 | MO | Repair the 1st RH left side Stop/Intercept Valve, EHC leaks (on the #5 Governor Valve, #1 EHC Pump Discharge, BFP right Governor Valve) and inspection and repair of Boiler |
| August | 8/27/19 11:00 PM | 9/1/19 1:49 AM | 98.82 | MO | Condenser Leak repairs, Hydrogen Valve Repairs, inspect and repair of precipitator, air heater, water pump, ID Fan, Clinker Grinder replacement, Burner Line Slip Joint replacement |
| September | 9/9/19 8:55 PM | 9/11/19 5:18 AM | 32.38 | U1 | High vibration in #9 turbine bearing |
| September | 9/11/19 5:18 AM | 9/11/19 7:38 AM | 2.33 | SF | Start Failure - Unit had a fire on BFP LS Stop Valve - blown oring tripped the unit |
| September | 9/11/19 7:38 AM | 9/13/19 9:45 AM | 50.12 | U1 | BFP LS Stop Valve - blown oring tripped the unit, Repairing hydraulic cylinder |
| September | 9/20/19 3:42 AM | 9/26/19 8:20 AM | 148.63 | U1 | Waterwall Tube Leak |
| September | 9/26/19 8:20 AM | 9/26/19 7:38 PM | 11.30 | SF | Aux Boiler Tripped |
| November | 11/7/19 4:58 PM | 11/10/19 12:15 PM | 67.28 | U1 | Burner failure |
| November | 11/10/19 12:15 PM | 11/10/19 9:40 PM | 9.42 | SF | Damper issue ID Fan |
| November | 11/11/19 1:21 AM | 11/13/19 12:50 AM | 47.48 | U1 | Packing blown on boiler division valve #4 |
| November | 11/13/19 12:50 AM | 11/13/19 7:43 AM | 6.88 | SF | Start Failure |
| November | 11/28/19 4:27 AM | 12/2/19 2:00 PM | 105.55 | U1 | Economizer tube leak |
| December | 12/2/19 2:00 PM | 12/9/19 12:00 AM | 154.00 | MO | Inspect and repair air heater bypass, outlet duct leaks, replace rupture diaphragm, heater check valve, Repair Second Reheat Attenuator Block Valve, air heater air motors |
| December | 12/9/19 12:00 AM | 12/22/19 6:00 AM | 318.00 | MO | Inspect and repair precipitator |
| December | 12/22/19 7:46 PM | 12/23/19 12:05 PM | 16.32 | U1 | Wastewater Backup into 600V Buss "A" Breaker area |
| December | 12/27/19 6:00 AM | 12/27/19 8:00 PM | 14.00 | MO | Inspect and repair Flushing Water Lines to the Absorber Bleedpumps |

Kentucky Power Company
01/01/2019 To 12/31/2019
Mitchell Unit 2

| Month | From | To | Duration (Hrs) | Event Type | Event Description |
|----------|-------------------|------------------|----------------|------------|---|
| January | 1/4/19 7:00 AM | 1/5/19 9:00 AM | 26.00 | MO | MO to make repairs on boiler feedpump turbine stop valve |
| January | 1/31/19 12:06 PM | 2/4/19 6:08 AM | 90.03 | U2 | Tube Leak |
| February | 2/4/19 6:08 AM | 2/13/19 11:20 PM | 233.20 | MO | LVDT on BFPT Stop Valve, inspection and repair on boiler, Precipitator, casing leak repair on ID Fans, coal air pipe hanger repairs |
| April | 4/13/19 12:03 AM | 4/27/19 1:22 PM | 349.32 | MO | Inspect and repair boiler, LP heater string valves, replace 3 FW Hand shut-off Valves, inspect and clean the main condenser, inspect and repair precips, clean and inspect coolers |
| April | 4/28/19 9:45 AM | 4/28/19 1:55 PM | 4.17 | SF | Problems with aux boiler drum level control |
| June | 6/11/19 11:10 PM | 6/23/19 7:13 PM | 284.05 | MO | Inspect and repair of boiler, stator water leak, BFP Stop Valve, Percipitator, 2C Absorber Recirc pump suction valve |
| June | 6/28/19 11:54 PM | 7/6/19 12:30 AM | 168.60 | MO | Inspect and repair on 24 inch River Water line, boiler, boiler hydro, ID Fan, precipitator, Steam Leak to valve on urea injection, hydrolizers ruptured discs, crack in shell of # 24 LP heater |
| July | 7/24/19 11:12 AM | 7/24/19 8:15 PM | 9.05 | U1 | Failed LVDT on #1 Main Turbine Control Valve |
| July | 7/24/19 9:03 PM | 7/25/19 1:30 PM | 16.45 | U1 | High Turbine Vibration on #4 Bearing |
| July | 7/31/19 12:22 AM | 8/7/19 5:10 PM | 184.80 | MO | Inspect and repair on tube leak, casing leaks, precipitator, coal leaks, ID Fan, boiler FP shims, and Boiler Drain and Vent valve repairs |
| October | 10/3/19 11:51 PM | 10/6/19 11:00 PM | 71.15 | MO | Pre Planned Outage Work |
| December | 12/5/19 12:00 AM | 12/7/19 7:15 PM | 67.25 | MO | Replace discharge valve on oxydation air blower "C" |
| December | 12/14/19 12:24 AM | 12/14/19 3:08 PM | 14.73 | MO | Inspect and repair of Main Turbine #1 Control Valve |
| December | 12/14/19 8:13 PM | 12/15/19 9:50 PM | 25.62 | U1 | Conductivity issues |
| December | 12/31/19 4:00 AM | 12/31/19 4:52 PM | 12.87 | MO | Clarite Filter Outlet Valve replacement |

| Event Type | NERC Description |
|------------|---|
| MO | Maintenance Outage - can be deferred beyond the end of the next weekend but must occur before the next planned outage |
| SF | Startup Failure - results when a unit is unable to synchronize within a specified startup time following an outage or reserve shutdown. |
| U1 | Unplanned (Forced) Outage - requires immediate removal from service |
| U2 | Unplanned (Forced) Outage - required removal from service within 6 hours |