STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0001171
Owner:	Associated Electric Cooperative, Inc.
Address:	2814 South Golden, Springfield, MO 65801
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	New Madrid Power Plant
Facility Address:	41 St. Jude Industrial Park, Marston, MO 63866
Legal Description:	See following pages
UTM Coordinates:	See following pages
Receiving Stream:	See following pages
First Classified Stream and ID:	See following pages
USGS Basin & Sub-watershed No.:	See following pages

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Steam-electric coal fired power plant; SIC # 4911; NAICS # 221112. Associated Electric Cooperative, Inc.'s (AECI) New Madrid Power Plant is a steam electrical power generation facility primarily engaged in the generation of electricity for distribution and sale located on the western bank of the Mississippi River. This facility includes two (2) 615-megawatt coal-fired cyclone burner steam electric generating units (Units 1 & 2). Additionally, this facility has nine (9) outfalls and four (4) permitted features, which are further described on pages two (2) and three (3) of this operating permit. This facility does not require a certified wastewater operator. Plant domestic wastewater is managed by sending to a POTW; domestic wastes from the precipitator electrical building are managed using a subsurface system.

This permit authorizes only wastewater and stormwater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Sections 640.013, 621.250, and 644.051.6 of the Law.

January 1, 2020
Effective Date

September 1, 2023
Modification Date

December 31, 2024
Expiration Date

John Hoke, Director, Water Protection Program

FACILITY DESCRIPTION (CONTINUED)

OUTFALL #001 – Unit 1 once through cooling water (condenser cooling water, 524 MGD), boiler blowdown (2.998 MGD), condensate polisher (1.224 MGD), neutralization sump (emptying laboratory drains and de-mineralizer, 0.576 MGD), boiler sampling system (0.157 MGD), screen wash, HVAC process cooling (2.88 MGD), slag tank overflow (0.072 MGD); intermittent sources: oil/water separator (OWS, 3.744 MGD), #1, #2, and #3 U1 Sumps. Neutralization occurs for laboratory drains and de-mineralizers; flotation occurs in the OWS; no other wastewater sources undergo treatment.

Legal Description:	Land Grant 1107, T22N, R14E, New Madrid County
UTM Coordinates:	X = 808109, Y = 4046792
Receiving Stream and ID:	Mississippi River (P) WBID #3152; 303(d)
USGS Basin & Sub-watershed No.:	Donaldson Point – Mississippi River, HUC# 08010100-0301
Design Flow:	554 MGD

2023 modification: added submerged flight conveyors (SFC) wastewater, 3000 gpm; 4.32 MGD. Boiler wash will be diverted through the SFC.

INTERNAL MONITORING POINT #01S – SFC for Unit 1

UTM Coordinates:	X = 807712, Y = 4046725

OUTFALL #002 – Unit 2 once through cooling water (condenser cooling water, 517 MGD), boiler blowdown (2.988 MGD), condensate polisher (1.224 MGD), OWS (3.744 MGD), HVAC process cooling, screen wash, slag tank overflow (0.072 MGD); intermittent sources: U2 #1, #2, #3, and #4 sumps. The OWS receives wastewater from: #1, #2 and #3 sumps (both units), #4 U2 sump, yard and floor drains, and auxiliary cooling water overflow. Oil removed from the OWS is removed off-site by a contractor. Treatment occurs in the OWS via floatation; no other treatment.

Legal Description:	Land Grant 1107, T22N, R14E, New Madrid County
UTM Coordinates:	X = 808140, Y = 4046718
Receiving Stream and ID:	Mississippi River (P) WBID #3152; 303(d)
USGS Basin & Sub-watershed No.:	Donaldson Point – Mississippi River, HUC# 08010100-0301
Design flow:	546.5 MGD/1015.5 cfs
Average Flow:	406.3 MGD/628.6 cfs

2023 modification: added submerged flight conveyors (SFC) wastewater, 3000 gpm; 4.32 MGD. Boiler wash will be diverted through the SFC.

INTERNAL MONITORING POINT #02S – SFC for Unit 2

UTM Coordinates:	X = 807749, Y = 4046653

OUTFALL #003 – ash settling pond and low volume waste sources (58.784 MGD): boiler slag sluice water (14.4 MGD), slag wash water (1.152 MGD), coal pile runoff (16.637 MGD): [coal conveyor wash (0.216 MGD), coal handling dust suppression (0.691 MGD), Unit 1 heater vents, heavy machinery wash, unit 1 and unit 2 yard drains, coal pile direct precipitation (15.730)]; intermittent sources: precipitation (26.595), dry fly ash handling (1.44 MGD), stormwater from landfill , and air tower overflow.

Fly ash landfill stormwater (including contact stormwater), boiler slag, and other low volume waste sources including stormwater run-off from coal pile (16 MGD max), and air heater wash; sludge sent to landfill (permitted feature #006). Coal conveyor wash, coal handling dust suppression, unit 1 heater vents, heavy machinery wash, units 1 & 2 yard drains. Boiler slag is washed at the ash settling pond by a contractor and removed from the site. Residue from slag washing, plant ditch clean-out, and coal residues are disposed in the utility's waste landfill (outfall #006). Fly ash is currently only disposed of in the landfill. Air heaters are cleaned approximately once per year with a generation rate of 5 million gallons per cleaning. The discharge rate of air heater wash to the settling basin is approximately 0.252 MGD per cleaning. Boilers are chemically cleaned every 3 to 9 years with a generation rate of approximately 0.66 MGD per unit. During a typical boiler cleaning, approximately 4430 pounds of iron is removed; iron solids are not approved for discharge under this permit. The resulting waste waters from chemically cleaned boilers are typically disposed by evaporation in a boiler. Chemical cleaning wastewater will be containerized and sent off site. Discharge of sluice wastewater is not permitted after December 31, 2023. Treatment: settling. See special conditions.

OUTFALL #003 CONTINUED: 2023 modification: After installation of the SFCs, this facility will no longer sluice ash (slag) sluice water (5,654 gpm; 8.1 MGD removed). and is on schedule to meet the EPA compliance date for cessation pursuant to 40 CFR 423.13(k)(1)(i) for December 31, 2025. SFC wastewater discharges to #001 & #002 respectively. Coal pile runoff will be discharging under outfall #009. Metal cleaning wastewater (without chemicals) will continue to be discharged from this outfall.

Legal Description:	NW ¼, SW ¼, Sec. 33, T22N, R14E, New Madrid County
UTM Coordinates:	X = 808625, Y = 4045405
Receiving Stream and ID:	Mississippi River (P) WBID #3152; 303(d)
USGS Basin & Sub-watershed No.:	Donaldson Point – Mississippi River, HUC# 08010100-0301
Design flow:	38 MGD
Average Flow:	33 MGD

OUTFALL #004 – Removed in 2023 modification. This outfall is the same structure used by outfall #009. Historical: boiler slag/bottom ash dewatering pond; boiler slag sluice water and precipitation. Boiler slag is dewatered, stockpiled and loaded onto barges or trucked off-site for reuse. Treatment: settling. See special conditions.

Legal Description:	Land Grant 1107, T22N, R14E, New Madrid County
UTM Coordinates:	X = 808189, Y = 4046476

OUTFALL #005 – Stormwater run-off from plant site; does not include coal pile stormwater run-off, sources of the storm water run-off include boiler roof drains, turbine roof drains, substation yard drains, plant site run-off, and agricultural run-off. Authorized intermittent non-stormwater discharges include safety valve drains, boiler drain tank overflow, boiler wash overflow, heat exchangers and air tower overflow.

Legal Description:	SW ¼, SW ¼, Sec. 29, T22N, R14E, New Madrid County
UTM Coordinates:	X = 806944, Y = 4046373
Receiving Stream:	Tributary to 8-20-13 MUDD V1.0
First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) WBID #3960
USGS Basin & Sub-watershed No.:	Portage Open Bay, HUC# 08020204-0608
Peak flow:	8.3 MGD
Average Flow:	dependent upon precipitation

OUTFALL #006 – landfill contact wastewater from the sedimentation basins. Periodic discharge is expected when the sedimentation ponds have less than approximately 2 feet of freeboard. New outfall; antidegradation review completed for 2023 modification. The wastewater is pumped to the river.

UTM Coordinates:	X = 808122, Y = 4043781
Old Receiving Stream:	Tributary to 8-20-13 MUDD V1.0
Old First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) WBID #3960
Old USGS Basin & Sub-watershed No.:	Portage Open Bay, HUC# 08020204-0608
2023 New Receiving Stream and ID:	Mississippi River (P) WBID #3152; 303(d)
2023 New USGS Basin & Sub-watershed:	Donaldson Point – Mississippi River, HUC# 08010100-0301
2023 New Design flow:	3.23 MGD

PERMITTED FEATURE #007 – implemented in the 2010 renewal to incorporate the total temperature discharge for outfalls #001 and #002. Permitted Feature #007 is not a physical outfall but is needed for compliance tracking purposes due to combination of thermal discharges for outfalls #001 and #002, which are in locations effecting the mixing considerations of both outfalls.

UTM Coordinates:	X = 808057, Y = 4046791 (Mississippi River)

OUTFALL #008 – landfill non-contact stormwater; new 2019 renewal; no antidegradation review required as this is stormwater only.

UTM Coordinates:	X = 805456, Y = 4044324
Receiving Stream:	Tributary to 8-20-13 MUDD V1.0
First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) WBID #3960
USGS Basin & Sub-watershed No.:	Portage Open Bay, HUC# 08020204-0608
Peak flow:	3.2 MGD
Average Flow:	dependent upon precipitation

OUTFALL #009 – new settling pond for coal pile runoff; no antidegradation required, this source of contaminants is simply being moved from comingling at outfall #003 to a new outfall serving the coal pile runoff; treatment is identical or better than historical coal pile runoff treatment. This outfall also discharges surrounding area industrial stormwater. This outfall utilizes the old outfall structure from outfall #004.

Legal Description:	NW ¼, SW ¼, Sec. 33, T22N, R14E, New Madrid County
UTM Coordinates:	X = 808265, Y = 4046410
Receiving Stream and ID:	Mississippi River (P) WBID #3152; 303(d)
USGS Basin & Sub-watershed No.:	Donaldson Point – Mississippi River, HUC# 08010100-0301
Design flow:	6.94 MGD

OUTFALL #010 –non-contact stormwater from the capped lined ash pond, and stormwater from the surrounding area

2023 Modification: allowed to discharge.

UTM Coordinates:	X = 808646, Y = 4045266
Receiving Stream:	Tributary to Mississippi River
First Classified Stream and ID:	Mississippi River (P) WBID #3152; 303(d)
USGS Basin & Sub-watershed No.:	Portage Open Bay, HUC# 08020204-0608
Design flow:	3.77 MGD

PERMITTED FEATURE #011 – identified during the 2019 renewal as a no discharge basin associated with landfill leachate which has percolated through the landfill.

UTM Coordinates:	X = 806491, Y = 4044357
Potential Receiving Stream:	Tributary to 8-20-13 MUDD V1.0
Potential First Classified Stream and ID:	8-20-13 MUDD V1.0 Remaining (C) WBID #3960
USGS Basin & Sub-watershed No.:	Portage Open Bay, HUC# 08020204-0608
Design flow:	0 MGD
Average Flow:	0 MGD

PERMITTED FEATURE #101 – cooling water intake structure serving unit 1; subject to 316(b).
UTM Coordinates: X = 807653, Y = 4047607 (Mississippi River)

PERMITTED FEATURE #102 – cooling water intake structure serving unit 2; subject to 316(b).
UTM Coordinates: X = 807636, Y = 4047640 (Mississippi River)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

OUTFALLS #001, #002, AND #007 *cooling water*	**TABLE A-1** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **January 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Effluent Flow (Q_e, Notes 1 & 2)	MGD/cfs	*		*	daily	measured
Effluent Temperature (T_e, Notes 1 & 2)	°F	*		*	daily	measured
Stream Flow (Q_s) (outfall #007)	cfs	*		*	daily	measured
Stream Temperature (T_s, Note 1, #007)	°F	*		*	daily	measured
ΔT (Note 3, #007)	°F	5		*	daily	calculation
T_{cap} (Note 4, #007)						
January	°F	50		*	daily	calculation
February	°F	50		*	daily	calculation
March	°F	60		*	daily	calculation
April	°F	70		*	daily	calculation
May	°F	80		*	daily	calculation
June	°F	87		*	daily	calculation
July	°F	89		*	daily	calculation
August	°F	89		*	daily	calculation
September	°F	87		*	daily	calculation
October	°F	78		*	daily	calculation
November	°F	70		*	daily	calculation
December	°F	57		*	daily	calculation
T_{dev} (Note 4, #007)						
January	°F	53		*	daily	calculation
February	°F	53		*	daily	calculation
March	°F	63		*	daily	calculation
April	°F	73		*	daily	calculation
May	°F	83		*	daily	calculation
June	°F	90		*	daily	calculation
July	°F	92		*	daily	calculation
August	°F	92		*	daily	calculation
September	°F	90		*	daily	calculation
October	°F	81		*	daily	calculation
November	°F	73		*	daily	calculation
December	°F	60		*	daily	calculation
Time of Deviation-Month (Note 4)	hours			*	continuous	calculation
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE FEBRUARY 28, 2020. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
LIMIT SET: A						
Total Time of Deviation (Note 4)	hours/year	88			yearly sum	calculation
MONITORING REPORTS SHALL BE SUBMITTED YEARLY; THE FIRST REPORT IS DUE JANUARY 28, 2021. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

INTERNAL MONITORING #01S & #02S *Submerged Flight Conveyors* *Low Volume Waste Sources*	**TABLE A-1.1** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on modification issuance date **September 1, 2023** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*		*	daily	24 hr. total ⏚
CONVENTIONAL						
Oil and Grease	mg/L	20		15	once/month	grab
pH †	SU	6.0 to 9.0		6.0 to 9.0	once/month	grab
Total Suspended Solids – Intake	mg/L	*		*	once/month	grab
Total Suspended Solids – Gross Discharge	mg/L	*		*	once/month	grab
Total Suspended Solids – Net Discharge ††	mg/L	100		30	once/month	calculation

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE OCTOBER 28, 2023.

OUTFALL #003 *wastewater*	**TABLE A-2** **INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in Table A-3 below must be achieved as soon as possible but no later than **December 31, 2023**. These interim effluent limitations are effective beginning **January 1, 2020** and remain in effect through **December 31, 2023** or as soon as possible. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*		*	daily	24 hr. total
CONVENTIONAL						
Oil & Grease	mg/L	15		10	once/month	grab
pH †	SU	6.0 to 9.0		6.0 to 9.0	once/month	grab
Total Suspended Solids – Intake	mg/L	*		*	once/month	grab
Total Suspended Solids – Gross Discharge	mg/L	*		*	once/month	grab
Total Suspended Solids – Net Discharge ‡	mg/L	100		30	once/month	calculation
NUTRIENTS						
Ammonia as N	mg/L	*		*	once/month	grab
Kjeldahl Nitrogen, Total (TKN)	mg/L	*		*	once/month	grab
Nitrate plus Nitrite as N	mg/L	*		*	once/month	grab
Phosphorus, Total (TP)	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE FEBRUARY 28, 2020.
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

LIMIT SET: A						
METALS						
Aluminum, Total Recoverable	µg/L	*		*	once/year	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2021.
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

OUTFALL #003 *wastewater*	**TABLE A-3** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **January 1, 2024** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*		*	daily	24 hr. total
CONVENTIONAL						
Oil & Grease	mg/L	15		10	once/month	grab
pH †	SU	6.0 to 9.0		6.0 to 9.0	once/month	grab
Total Suspended Solids	mg/L	100		30	once/month	grab
NUTRIENTS						
Ammonia as N	mg/L	*		*	once/month	grab
Kjeldahl Nitrogen, Total (TKN)	mg/L	*		*	once/month	grab
Nitrate plus Nitrite as N	mg/L	*		*	once/month	grab
Phosphorus, Total (TP)	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE FEBRUARY 28, 2024. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
LIMIT SET: A						
METALS						
Aluminum, Total Recoverable	µg/L	*		*	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2025. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

OUTFALL #004 *wastewater*	**TABLE A-4** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

Outfall and limit set deleted at 2023 modification.

OUTFALLS #005 *Stormwater Only*	**TABLE A-5** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **January 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL LIMITATIONS		BENCH-MARKS	MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE		MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: B						
PHYSICAL						
Flow	MGD	*		-	twice/year φ	24 Hr Est.
CONVENTIONAL						
Chemical Oxygen Demand	mg/L	**		120	twice/year φ	grab
Oil & Grease	mg/L	**		10	twice/year φ	grab
pH †	SU	**		6.0 to 9.0	twice/year φ	grab
Settleable Solids	mL/L/hr	**		1.5	twice/year φ	grab
Total Suspended Solids	mg/L	**		100	twice/year φ	grab

MONITORING REPORTS SHALL BE SUBMITTED BIANNUALLY; THE FIRST REPORT IS DUE JULY 28, 2020.
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Outfall #006 *UWL contact stormwater*	**TABLE A-5.1** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on modification issuance date **September 1, 2023** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M					
PHYSICAL					
Flow	MGD	*	*	daily	24 hr. total
CONVENTIONAL					
Chemical Oxygen Demand (COD)	mg/L	*	*	once/month	grab
Chlorine, Total Residual (TRC)	µg/L	*	*	once/month	grab
Oil & Grease	mg/L	*	*	once/month	grab
pH †	SU	* (min, max)	-	once/month	grab
Total Suspended Solids (TSS)	mg/L	*	*	once/month	grab
NUTRIENTS					
Ammonia as N	mg/L	*	*	once/month	grab
Kjeldahl Nitrogen, Total (TKN)	mg/L	*	*	once/month	grab
Nitrate plus Nitrite as N	mg/L	*	*	once/month	grab
Phosphorus, Total P (TP)	mg/L	*	*	once/month	calculation
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE OCTOBER 28, 2023.					
OTHER – LIMIT SET A					
WET TEST - ACUTE	TUa	*	-	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2024.					

OUTFALL #009 *coal pile runoff*	**TABLE A-6** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **January 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: M						
PHYSICAL						
Flow	MGD	*		*	daily	24 hr. total
CONVENTIONAL						
Oil & Grease	mg/L	15		10	once/month	grab
pH †	SU	6.0 to 9.0		6.0 to 9.0	once/month	grab
Total Suspended Solids ▲	mg/L	50		*	once/month	grab
NUTRIENTS						
Ammonia as N	mg/L	*		*	once/month	grab
Kjeldahl Nitrogen, Total (TKN)	mg/L	*		*	once/month	grab
Nitrate plus Nitrite as N	mg/L	*		*	once/month	grab
Phosphorus, Total (TP)	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE FEBRUARY 28, 2020. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Aluminum, Total Recoverable	µg/L	*		*	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2021. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

PERMITTED FEATURE #011 *no-discharge leachate pond*	**TABLE A-7** **NO DISCHARGE: FINAL MONITORING REQUIREMENTS**

The permittee is not authorized to discharge from this feature. The final requirements shall become effective on **January 1, 2020** and remain in effect until expiration of the permit. This feature shall be monitored and operationally controlled by the permittee as specified below:

MONITORING PARAMETERS	UNITS	MONITORING REQUIREMENTS				
		DAILY MINIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: OM						
Freeboard (minimum)	feet	2		*	once/month	measured
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE FEBRUARY 28, 2020. NO DISCHARGES ARE AUTHORIZED FROM THIS FEATURE						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

Note 1: The facility will report the measured flow and actual discharge temperature for outfalls #001 and #002 independently. The facility may measure stream temperature at the intake(s).

Note 2: (a) The facility will report the sum of the flows for outfalls #001 and #002 combined for outfall #007 as "end of pipe" measurement; the facility will use this resultant flow for Q_e in the equation below.

(b) The facility will provide the weighted average temperature of outfalls #001 and #002 temperature for outfall #007 as "end of pipe"; the facility will use this resultant temperature for T_e in the calculations below.
To calculate a weighted average, the facility should use the following equations:
Percent Flow: Flow 1/(Flow 1+Flow 2); Flow 2 is 1-% Flow 1.
Weighted Average: (Temp 1 * % total flow 1) + (Temp 2 * % total flow 2)

Note 3: Reported for outfall #007:

$$\Delta T = [((Q_s/4)T_s + Q_eT_e) / ((Q_s/4) + Q_e)] - T_s$$

Where:

ΔT	the change in temperature in °F at the edge of the thermal mixing zone
$Q_s/4$	the receiving stream flow in cfs divided by 4
Q_e	effluent flow in cfs
T_s	measured stream temperature
T_e	measured temperature of effluent

Note 4: Reported for outfall #007:
To calculate the temperature of the stream at the edge of the mixing zone, the facility will use the following equation: Designated as T_{emz} in the equation below, the facility can determine compliance with T_{dev}, T_{cap}, and percent time deviation allowance.

$$T_{emz} = [((Q_s/4)T_s + Q_eT_e) / ((Q_s/4) + Q_e))]$$

Where:

T_{emz}	the temperature of the receiving stream at the edge of the thermal mixing zone
$Q_s/4$	the receiving stream flow in cfs divided by 4
Q_e	effluent flow in cfs
T_s	measured stream temperature
T_e	measured temperature of effluent

Temperature cap (designated as T_{cap}) is the effluent temperature limitation applicable in the receiving stream at the edge of the thermal mixing zone. It may be exceeded for no more than 1% of the year (88 hours).

Temperature deviation (designated as T_{dev}) is the maximum effluent temperature limit at the edge of the thermal mixing zone which may not be exceeded at any time. MoCWIS is set up to receive one value for the thermal limitations for each month. The facility will violate the thermal limit if the value entered in MoCWIS is above the T_{dev} value for the month.

Percent Time Deviation Allowance: Missouri's Water Quality Standards allows permittees to exceed their applicable T_{cap} criteria (but not the T_{dev} criteria) for 1% of the year in Zone 2 in the Mississippi River. The time of deviation allowance shall be tracked in hours per year <u>any</u> time their calculated temperature values exceeds the month's daily maximum T_{cap} effluent limit (the facility should track in minutes if possible). The permittee is required to monitor and report the total monthly exceedance time (not an average).

a) If T_{emz} is less than T_{cap} then the permittee records "0" hours deviation.
b) Any time T_{emz} is above T_{cap} then the facility reports the number of hours of deviation (including minutes as a decimal).
c) The permittee shall report on January 28th of each year the total number of hours the facility exceeded their temperature cap effluent limits for the entire year.

A violation occurs if:

a. The percent time deviation allowance is above 1% (88 hours) for the calendar year; and/or
b. The T_{emz} value reported is above the T_{dev} monthly limitation.

* Monitoring and reporting requirement only.

** Monitoring and reporting requirement with benchmark. See Special Conditions for additional requirements.

† pH: the facility will report the minimum and maximum values; pH is not to be averaged.

†† Net discharge for #01S and #02S is calculated by utilizing intake data from #101 and/or #102. TSS data may be obtained from either intake. Net discharge will be calculated individually. If no intake water was used in this discharge, a net allowance is not allowed and the facility will report "0" for intake and will report the same value for gross and net.

‡ Net discharge can only be calculated if intake water is discharged through outfalls #003. Once ash sluicing has ceased, this outfall is no longer granted net limitations; the facility will use "0" for the intake water and will report the same values for gross and net. Gross discharge is the actual end of pipe measurement.

▲ Per 40 CFR 423.15(b)(10), any untreated overflow from facilities designed, constructed, and operated to treat the coal pile runoff which results from a 10 year, 24 hour rainfall event shall not be subject to the standards in paragraph (b)(11) of this section. The onus is placed upon the facility to provide operational reports to show the basin is operated and maintained to sufficiently contain a 10 year 24 hour precipitation event.

⸸ Flow measurements may be calculated or measured. The facility will report the 24 hour total.

φ Twice yearly sampling schedule:

MINIMUM BI-ANNUAL SAMPLING REQUIREMENTS			
	MONTHS	SAMPLING REQUIREMENT	REPORT IS DUE
First Half of Year	January, February, March, April, May, June	Sample at least once during any month of the half year	July 28th
Second Half of Year	July, August, September, October, November, December	Sample at least once during any month of the half year	January 28th

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Part I standard conditions dated August 1, 2014, and hereby incorporated as though fully set forth herein.

C. SCHEDULE OF COMPLIANCE

Schedules of compliance are allowed per 40 CFR 122.47. The facility shall attain compliance with final effluent limitations established in this permit as soon as reasonably achievable:

1. Special conditions stipulate specific terms for the cooling water intake structures and groundwater monitoring requirements.

2. All requirements shall be met as soon as practicable but no later than the date specified.

3. All reports (not associated with renewal requirements) shall be submitted using the eDMR system.

D. SPECIAL CONDITIONS

1. Groundwater Monitoring. This facility shall:
   (a) Monitor the groundwater, at a minimum, semi-annually over the next permit term in accordance with the groundwater monitoring programs for Ponds 003 and 004 as established under the USEPA CCR Rule (40 CFR §257.90 through §257.95) at the piezometers and monitoring wells established by the facility.
   (b) The facility shall monitor for, and provide data for, the following constituents: Appendix III constituents to 40 CFR 257 [boron, calcium, chloride, fluoride, pH, Sulfate, Total Dissolved Solids (TDS)] and Appendix IV constituents to 40 CFR 257 [antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226 and 228 combined].
   (c) The facility shall notify the Water Protection Program in writing, of all well monitoring results. The facility may provide the information in the eDMR system as an uploaded report.
   (d) The facility shall monitor the groundwater in accordance with the April 2019 Sampling and Analysis Plan for New Madrid Power Plant including all QA/QC procedures. This plan does not supersede any decisions the Department may make regarding the contributions of contaminants to groundwater at the site.

2. Cooling Water Intake Structure Requirements for Impingement.
In accordance with 125.98(b)(2), this permit incorporates Best Technology Available (BTA) requirements per 40 CFR 401.14 to reduce impingement mortality per 40 CFR 125 Subpart J. The current impingement technology is horizontal velocity caps. BTA determinations may vary based on the studies submitted by the facility during the next permit term. The facility shall supply all studies in accordance with 40 CFR 122.2(r) and as listed in Special Condition #5(b) of this operating permit for Best Technology Available (BTA) Determinations from the options outlined in 40 CFR 125.94(c) for the next permit renewal.

3. Cooling Water Intake Structure Requirements for Entrainment.
In accordance with 125.98(b)(2), this permit incorporates Best Technology Available (BTA) requirements per 40 CFR 401.14 to reduce entrainment per 40 CFR 125.94(d). The BTA determination for entrainment is currently horizontal velocity caps for this facility. Future entrainment determinations may vary based on the studies submitted by the facility during the next permit term. The facility shall supply all studies in accordance with 40 CFR 122.2(r) and as listed in Special Condition #5(b) of this operating permit for Best Technology Available (BTA) Determinations from the options outlined in 40 CFR 125.94(d) for the next permit renewal.

4. Annual reports are due to the department on February 28th of each year for the term of the permit (including the year of renewal) which must include the following:
   (a) Status update for items under 1., 2., and 3. in this section; including completion details and operational status after implementation.
   (b) Annual Certification Report for the intake in accordance with 40 CFR 125.97(c) to fulfill department requirements at 40 CFR 125.98(k).

5. Renewal Application Requirements. 180 days prior to permit expiration, the following are due to the Department:
   (a) Complete Forms A, C, and D including all required testing of effluents and stormwater.
   (b) Cooling water intake requirements:
      i. Cooling water intake structure data as required by 40 CFR 122.21(r)(3)(iii); this includes the floating low water pumps if the facility determines continued use is required.
      ii. Baseline biological characterization study in accordance with 40 CFR 122.21(r)(4). In addition to the study results, the facility will provide a determination regarding the biological characterization of the local population of fish, shellfish, and other aquatic organisms.
      iii. Cooling water system data as required by 40 CFR 122.21(r)(5)(i), (ii), and (iii); this includes the floating low water pumps if the facility determines continued use is required.
      iv. Chosen method of compliance with impingement mortality standard as required by 40 CFR 122.21(r)(6) et seq.
      v. Historic yet relevant entrainment data acquired under any phase of the regulations associated with Clean Water Act 316(b) in accordance with 40 CFR 122.21(r)(7).
      vi. Provide the operational status of the facility in accordance with 40 CFR 122.21(r)(8); this includes the floating low water pumps if the facility determines continued use is required.
      vii. Provide the results of a two-year Entrainment Characterization Study in accordance with 40 CFR 122.21(r)(9); this includes the floating low water pumps if the facility determines continued use is required. This report must include a Comprehensive Technical Feasibility and Cost Evaluation Study in accordance with 40 CFR 122.21(r)(10), a Benefits Valuation Study in accordance with 40 CFR 122.21(r)(11), a Non-Water Quality Environmental and Other Impacts Study in accordance with 40 CFR 122.21(r)(12), and finally, a peer review of the reports required under 40 CFR 122.21(r)(10) through (12) in accordance with 40 CFR 122.21(r)(13).
      viii. Provide any and all communications with the United States Fish and Wildlife Services or Missouri Department of Conservation, and any other communications regarding aquatic organisms at the site with any state or federal agency in compliance with 40 CFR 122.21(r)(1)(ii)(C) and 40 CFR 122.21(r)(1)(ii)(H).
   (c) Groundwater:
      i. Provide an excel spreadsheet summarizing all the data collected for groundwater monitoring during the last 10 years for Ponds 003 and 004. Data shall be independent of qualifiers so data manipulation can occur. (ie. cells shall not contain “0.2 J” or “<0.2”; the qualifier shall be placed in an adjacent cell); a separate sheet shall be provided for each CCR unit.
      ii. Provide a corrective measures assessment and results report for coal combustion residual ponds with statistically significant levels of Appendix IV constituents consisting of corrective measures aligned with 40 CFR 257.96 and 257.97 with the application for permit renewal.
   (d) Coal Combustion Residual (CCR) Units: The facility shall supply all documents regarding closure or proposed closure for each of the CCR units, including, any communications between the facility and other Department of Natural Resources programs, and any federal resources and communications used to complete the actions, with the application for renewal.

6. Spills, Overflows, and Other Unauthorized Discharges.
   (a) Any spill, overflow, or other discharge(s) not specifically authorized above are unauthorized discharges.
   (b) Should an unauthorized discharge cause or permit any contaminants to discharge or enter waters of the state, the unauthorized discharge must be reported to the regional office as soon as practicable but no more than 24 hours after the discovery of the discharge. If the spill or overflow needs to be reported after normal business hours or on the weekend, the facility must call the Department's 24 hour spill line at 573-634-2436.
   (c) If the unauthorized discharge was from an overflow from a no-discharge wastewater basin, the report must include all records confirming operation and maintenance records documenting proper maintenance in accordance with condition (d) below.
   (d) Permittee shall adhere to the following minimum Best Management Practices (BMPs) for no-discharge wastewater holding structures:
      i. To prevent unauthorized discharges, the no-discharge wastewater basin must be properly operated and maintained to contain all wastewater plus run-in and direct precipitation. During normal weather conditions, the liquid level in the storage structure shall be maintained below the upper operating level, so adequate storage capacity is available for use during adverse weather periods. The liquid level in the storage structure should be lowered on a routine schedule based on the design storage period. Typically, this should be accomplished prior to expected seasonal wet and winter climate periods. The upper operating level for uncovered storage structures is one foot below the emergency overflow level. Maintain liquid level in the no-discharge wastewater structure at least 2 feet from the discharge pipe or top of the basin, whichever is lower.
      ii. Weekly inspection of no-discharge wastewater basins shall occur. Inspection notes will be kept at the facility and made available to the Department upon request.
      iii. The inspections will note any issues with the no-discharge structure and will record the level of liquid as indicated by the depth marker.

7. 40 CFR 423.13(a): There shall be no discharge of polychlorinated biphenyl compounds (PCBs) such as those commonly [historically] used for transformer fluid.

8. 40 CFR 423.13(c)(2): Neither free available chlorine [or bromine] nor total residual chlorine [or bromine] may be discharged from any unit at this facility.

9. 40 CFR 423.13(h) and (k): The facility shall not discharge either fly ash or bottom ash transport wastewater [sluice water] after December 31, 2023. The facility shall stop sluicing ash as soon as practicable. Ash transport wastewater within the ponds as of December 31, 2023 may be allowed to be discharged during closure activities after December 31, 2023, so long as federal effluent limitation guidelines (40 CFR 423) are met for the discharge of legacy wastewater.

10. Discharge of chemical cleaning wastewater is not authorized under this permit.

11. Dust Suppression.
   (a) For the purposes of dust suppression only, this permit authorizes the application of wastewater (including leachate) and stormwater to only: the landfill working face, ash (fly and bottom) storage areas, including fly ash silos, slag storage areas, barge unloading coal storage areas, rotary rail car unloading area, coal conveying equipment, coal crushers, and coal pile.
   (b) For the purposes of dust suppression only, this permit authorizes the application of stormwater or potable water to roads and other areas requiring dust suppression. An additive may be used to ensure fugitive emissions are suppressed.
   (c) Runoff is not permitted from application activities.
   (d) No application shall occur during precipitation events unless necessary to prevent fugitive dust; typically <0.25 inch per day rainfall.

12. Electronic Discharge Monitoring Report (eDMR) Submission System.
   (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. Standard Conditions Part I, Section B, #7 indicates the eDMR system is currently the only Department approved reporting method for this permit.
   (b) Programmatic Reporting Requirements. All reports must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data. After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date
      (1) Schedule of Compliance Progress Reports;
      (2) Whole Effluent Toxicity (WET) Reports;
      (3) CWA Section 316(b) Annual Reports; and
      (4) Any additional report required by the permit excluding bypass reporting.
   (c) The following shall be submitted electronically after such a system has been made available by the Department:
      (1) General Permit Applications/Notices of Intent to discharge (NOIs);
      (2) Notices of Termination (NOTs);
      (3) No Exposure Certifications (NOEs);

(4) Low Erosivity Waivers, and Other Waivers from Stormwater Controls (LEWs); and
(5) Bypass reporting.

(d) Electronic Submission: access the eDMR system via: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx

(e) Electronic Reporting Waivers. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period the approved electronic reporting waiver is effective.

13. Stormwater Pollution Prevention Plan (SWPPP).
The facility's SIC code or description is found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2) and hence shall continue to implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested. The SWPPP must be reviewed and updated annually or if site conditions affecting stormwater change. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in: *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002) published by the EPA in 2015 https://www.epa.gov/sites/production/files/2015-11/documents/swppp_guide_industrial_2015.pdf The purpose of the SWPPP and the Best Management Practices (BMPs) listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective at preventing pollution [10 CSR 20-2.010(56)] to waters of the state. Corrective action describes the steps the facility took to eliminate the deficiency.
The SWPPP must include:

(a) A listing of specific contaminants and their control measures (or BMPs) and a narrative explaining how BMPs are implemented to control and minimize the amount of contaminants potentially entering stormwater.

(b) A map with all outfalls and structural BMPs marked.

(c) A schedule for at least once per month site inspections and brief written reports. The inspection report must include precipitation information for the entire period since last inspection, as well as observations and evaluations of BMP effectiveness. Throughout coverage under this permit, the facility must perform ongoing SWPPP review and revision to incorporate any site condition changes.
   i. Operational deficiencies must be corrected within seven (7) calendar days.
   ii. Minor structural deficiencies are those which can be corrected within fourteen (14) calendar days.
   iii. Major structural deficiencies (deficiencies projected to take longer than 14 days to correct) must be reported as an uploaded attachment through the eDMR system with the DMRs. The initial report shall consist of the deficiency noted, the proposed remedies, the interim or temporary remedies (including proposed timing of the placement of the interim measures), and an estimate of the timeframe needed to wholly complete the repairs or construction. If required by the Department, the permittee shall work with the regional office to determine the best course of action. The permittee should consider temporary structures to control stormwater runoff. The facility shall correct the major structural deficiency as soon as reasonably achievable.
   iv. All actions taken to correct the deficiencies shall be included with the written report, including photographs, and kept with the SWPPP. Additionally, corrective action of major structural deficiencies shall be reported as an uploaded attachment through the eDMR system with the DMRs.
   v. BMP failure causing discharge through an unregistered outfall is considered an illicit discharge and must be reported in accordance with Standard Conditions Part I.
   vi. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to Department personnel upon request. Electronic versions of the documents and photographs are acceptable.

(d) A provision for designating an individual to be responsible for environmental matters and a provision for providing training to all personnel involved in housekeeping, material handling (including but not limited to loading and unloading), storage, and staging of all operational, maintenance, storage, and cleaning areas. Proof of training shall be submitted upon request by the Department.

14. Site-wide minimum Best Management Practices (BMPs). At a minimum, the permittee shall adhere to the following:

(a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, warehouse activities, and other areas, and thereby prevent the contamination of stormwater from these substances.

(b) Ensure adequate provisions are provided to prevent surface water intrusion into the wastewater storage basin, to divert stormwater runoff around the wastewater storage basin, and to protect embankments from erosion.

(c) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.

(d) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so these materials are not exposed to stormwater or provide other prescribed BMPs such as plastic lids and/or portable spill pans to prevent the commingling of stormwater with container contents. Commingled water may not

be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater. Spill records should be retained on-site.

(e) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.

(f) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property.

15. Stormwater Benchmarks. This permit stipulates pollutant benchmarks applicable to your discharge.
    (a) The benchmarks do not constitute direct numeric effluent limitations; therefore, a benchmark exceedance alone is not a permit violation. Benchmark monitoring and visual inspections shall be used to determine the overall effectiveness of the SWPPP and to assist you in knowing when additional corrective action may be necessary to protect water quality. If a sample exceeds a benchmark concentration you must review your SWPPP and your BMPs to determine what improvements or additional controls are needed to reduce the pollutant in your stormwater discharge(s).
    (b) Any time a benchmark exceedance occurs, a Corrective Action Report (CAR) must be completed. A CAR is a document recording the efforts undertaken by the facility to improve BMPs to meet benchmarks in future samples. CARs must be retained with the SWPPP and be available to the Department upon request. If the efforts taken by the facility are not sufficient and subsequent exceedances of a benchmark occur, the facility must contact the Department if a benchmark value cannot be achieved. Failure to take corrective action to address a benchmark exceedance and failure to make measurable progress towards achieving the benchmarks is a permit violation.

16. Petroleum Secondary Containment.
    Before releasing water accumulated in petroleum secondary containment areas, it must be examined for hydrocarbon odor and presence of sheen to protect the general criteria found at 10 CSR 20-7.031(4).
    (a) Bulk storage containers throughout the facility are all equipped with secondary containment; these containments must be managed in accordance with the site SPCC plan.
    (b) Discharge of a sheen is not permissible.
    (c) Internal secondary containments shall be pumped out and removed by contractor in the event of a leak spill.
    (d) If the facility wishes to discharge the accumulated stormwater with hydrocarbon odor or presence of sheen, the water shall be treated using an appropriate removal method. Visual observance of sheen will disqualify discharge until all sheen is removed. On-site stick tests should also be used to assure all hydrocarbons are removed from the secondary containment.

17. Oil/Water Separators (OWS). This site operates oil water separator tanks for the treatment of stormwater and wastewaters. OWS, as enumerated in the Facility Description, are hereby authorized and shall be operated per manufacturer's specifications. The specifications and operating records must be made accessible to Department staff upon request. Oil water separator sludge is considered used oil; sludge must be disposed of in accordance with 10 CSR 25-11.279; used oil is removed off-site by a contractor.

18. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the CWA section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Clean Water Act Sections 301(b)(2)(C) and (D), §304(b)(2), and §307(a) (2), if the effluent standard or limitation so issued or approved contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or controls any pollutant not limited in the permit. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, termination, notice of planned changes, or anticipated non-compliance does not stay any permit condition.

19. All outfalls and permitted features must be clearly marked in the field.

20. Report no discharge when a discharge does not occur during the report period. It is a violation of this permit to report no-discharge when a discharge has occurred.

21. Changes in Discharges of Toxic Pollutant.
    In addition to the reporting requirements under §122.41(1), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
    (a) That an activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
        (1) One hundred micrograms per liter (100 µg/L);
        (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile;
        (3) Five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol;
        (4) One milligram per liter (1 mg/L) for antimony;

(5) Five (5) times the maximum concentration value reported for the pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
(6) The notification level established by the Department in accordance with 40 CFR 122.44(f).

(b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
(1) Five hundred micrograms per liter (500 µg/l);
(2) One milligram per liter (1 mg/l) for antimony;
(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with §122.21(g)(7).
(4) The level established by the Director in accordance with §122.44(f).

22. Reporting of Non-Detects.
(a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way the precision and accuracy of the analyzed result can be enumerated.
(b) The permittee shall not report a sample result as "non-detect" without also reporting the detection limit of the test or the reporting limit of the laboratory. Reporting as "non-detect" without also including the detection/reporting limit will be considered failure to report, which is a violation of this permit.
(c) The permittee shall report the non-detect result using the less than "<" symbol and the laboratory's detection/reporting limit (e.g. <6).
(d) See sufficiently sensitive method requirements in Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
(e) When calculating monthly averages, one-half of the minimum detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (C).

23. Failure to pay fees associated with this permit is a violation of the Missouri Clean Water Law (644.055 RSMo).

24. This permit does not cover land disturbance activities.

25. This permit does not authorize the placement of fill materials in flood plains, placement of solid materials into any waterway, the obstruction of stream flow, or changing the channel of a defined drainage course. The facility must contact the U.S. Army Corps of Engineers (Corps) to determine if a CWA §404 Department of Army permit is required.

26. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
(a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The facility shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
- The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
- The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).

(b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing required to stabilize the sample during shipping.
(c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
(d) The laboratory shall not chemically dechlorinate the sample.
(e) The Allowable Effluent Concentration (AEC) is 9%; the dilution series is: 2.25%, 4.5%, 9%, 18%, and 36%.
(f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
(g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50% (LC_{50}) is the effluent concentration causing death in 50% of the test organisms at a specific time.

27. Specific Best Management Practices for utility waste landfill non-contact stormwater. The stormwater discharging from outfalls #008 and #010 is only from the capped and closed portion of the utility waste landfill; discharge of contact stormwater though these outfalls is prohibited. The drainage area is vegetated, graded appropriately to handle stormwater runoff, contains rock check dams to slow water flow down, and is inspected at least once each month. Inspections must evaluate cap condition and potential erosion. The facility must ensure the cap remains in good condition and if any erosion areas need repaired. Any moderate erosion (such as rills > 3-4 inches deep) or severe erosion (washouts of vegetation) shall be repaired as soon as possible.

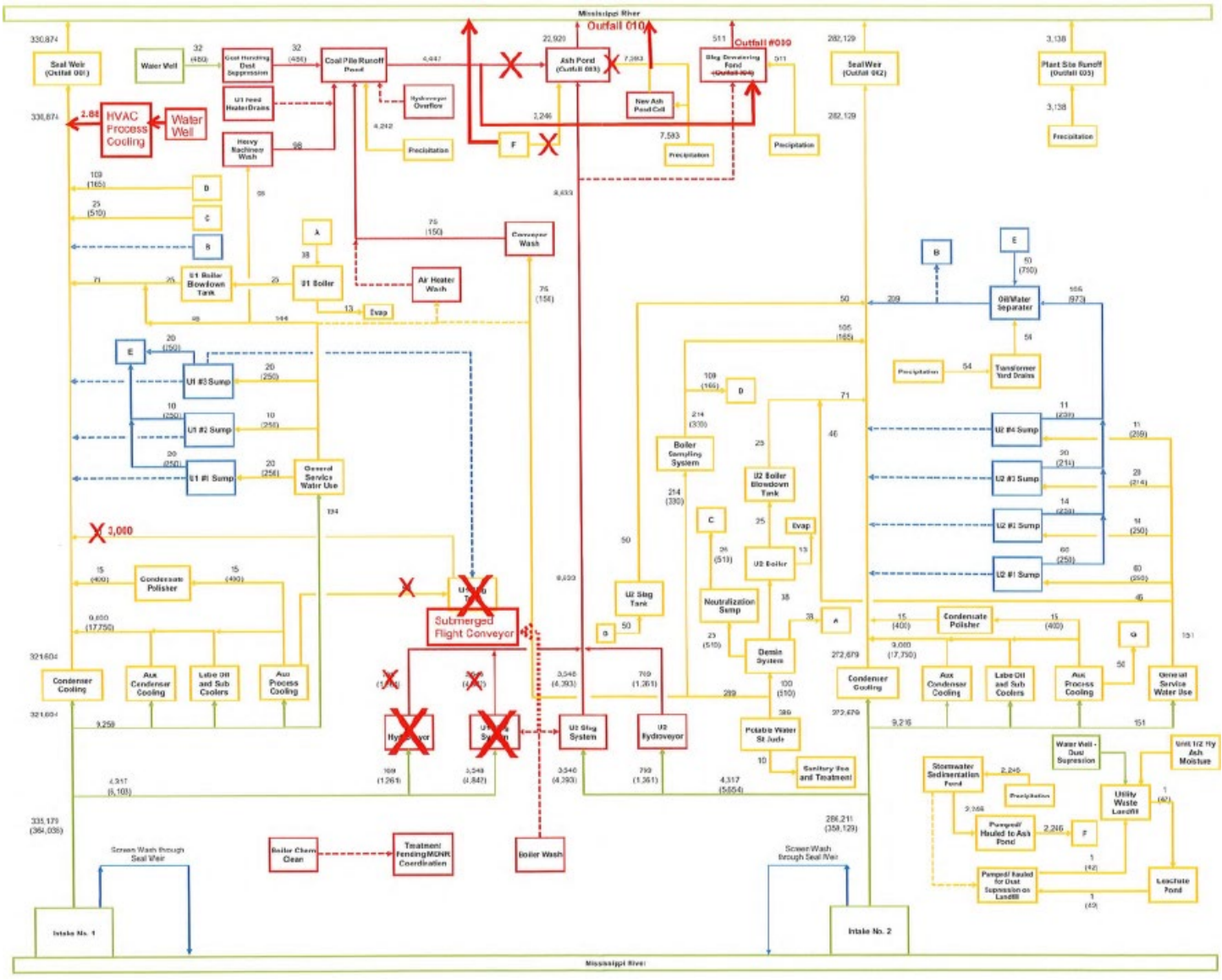
MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATEMENT OF BASIS
MO-0001171 - NEW MADRID POWER PLANT

This Statement of Basis (Statement) gives pertinent information regarding modifications to the above listed operating permit. A Statement is not an enforceable part of a Missouri State Operating Permit. Items listed here supersede the 2019 fact sheet.

PART I – FACILITY INFORMATION

See changes in the facility description of the permit; marked as "2023 modification" and other changes described below for outfall-specific information.

New Water Balance Diagram:



"Slag dewatering pond" no longer dewaters slag; naming convention kept.
Unit two will be switching to the SFC early 2023; this diagram does not reflect that change yet; although the permit allows it.

The facility has sought determination for numerous changes under requests for antidegradation review over the last 3 years. Each of the reviews determined that antidegradation was not applicable because overall pollutant loading from the facility to waters of the state and United States was unchanged or decreasing.

REVISED OUTFALL LOCATIONS:

PART II – MODIFICATION RATIONALE, DERIVATION, AND EFFLUENT LIMIT DETERMINATIONS

OUTFALLS #01S & #02S – SUBMERGED FLIGHT CONVEYORS – LOW VOLUME WASTE SOURCE

Added submerged flight conveyor (SFC) wastewater to outfalls #001 and #002. Addition completed under antidegradation review ACT #759 2021 Addendum for Unit 1 and antidegradation applicability for Unit 2 was determined on November 18, 2022 under ACT #1314. The SFC is a low volume waste source under 40 CFR 423.15(b) for NSPS, Table A-1.1 was added to the permit. The SFC shall be sampled after treatment but prior to co-mingling with other wastewater. Each unit has an independent SFC with independent sampling locations. Unit 1 is #01S and Unit 2 is #02S. Unit 1 will be in service before Unit 2.

SFC ANTIDEGRADATION REVIEW:

Wastewater discharges with new, altered, or expanding flows, the Department is to document, by means of antidegradation review, if the use of a water body's available assimilative capacity is justified. The facility must pay for the Department to complete the review. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the Department prior to establishing, altering, or expanding discharges. See https://dnr.mo.gov/document-search/antidegradation-implementation-procedure Per [10 CSR 20-7.015(4)(A)], new discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream, or connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

- ✓ The process and flow changes were reviewed by the engineering section and were determined to not have an additive pollutant loading on the receiving streams. The changes in the permit did not require a full antidegradation review. The facility ceased sluicing ash which lowered the overall pollutant loading from this facility into the receiving streams.
- ✓ An antidegradation review is not required for non-chemical metal cleaning wastes. The washes are being directed into the SFCs, but these cleanings are unchanged in the discharge type or frequency. In an email dated December 13, 2022, AECI indicated that the boiler wash water directed through the SFCs did not use chemicals. Alternatively, chemical metal cleaning wastewater (using chemicals) is containerized and is not discharged at this site. The ELG therefore does not apply to this boiler wash water.

MONITORING POINTS #01S AND #02S SAMPLING AND REPORTING REQUIREMENTS:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL						
FLOW	MGD	*	*	DAILY	MONTHLY	24 HR. TOT
CONVENTIONAL						
OIL AND GREASE	mg/L	20	15	ONCE/MONTH	MONTHLY	GRAB
pH †	SU	6.0 to 9.0	6.0 to 9.0	ONCE/MONTH	MONTHLY	GRAB
TSS – INTAKE	mg/L	*	*	ONCE/MONTH	MONTHLY	GRAB
TSS – GROSS DISCHARGE	mg/L	*	*	ONCE/MONTH	MONTHLY	GRAB
TSS – NET DISCHARGE ⸸	mg/L	100	30	ONCE/MONTH	MONTHLY	GRAB

* monitoring and reporting requirement only
† report the minimum and maximum pH values; pH is not to be averaged
⸸ see TSS below and note in permit

DERIVATION AND DISCUSSION OF LIMITS:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD), daily monitoring is required.

Oil and Grease

Categorical effluent limits 40 CFR 423.15(b)(3) are applicable; 20 mg/L daily maximum, 15 mg/L monthly average. There is no expectation that oils and greases would be present in amounts which would cause or contribute to exceedances of WQS, therefore the TBEL will be implemented in place of the WQBEL.

pH

6.0 to 9.0 SU – instantaneous grab sample. This is an internal outfall therefore technology limits 40 CFR 423.15(b)(1), 10 CSR 20-7.031(9)(I)1, and 40 CFR 401 can be applied. The Mississippi provides assimilative capacity therefore water quality limitations of 6.5 to 9.0 are not required. pH may be increased or decreased based on the water chemistry in the conveyor. The facility recirculates water. pH is a fundamental water quality indicator. Limitations in this permit will protect against aquatic organism toxicity, downstream water quality issues, human health hazard contact, and negative physical changes in accordance with the general criteria at 10 CSR 20-7.031(4) and the Clean Water Act's (CWA) goal of 100% fishable and swimmable rivers and streams.

Temperature

Elevated temperature is expected to occur with this waste stream, however, the Department is monitoring the thermal discharge at outfalls #001, #002, and #007 because temperature is a WQBEL. There is no TBEL for temperature.

Total Suspended Solids (TSS)

Technology limits: 100 mg/L daily maximum and 30 mg/L monthly average per 40 CFR 423.15(b)(3) for low volume waste sources. This permit allows net limitations for the discharge. There are no water quality standards for this parameter. The facility shall measure the influent TSS and subtract the effluent TSS; report "0" if the value is negative. Schedules of compliance are not available for TBELs. A note was added to the permit: †† Net discharge for #01S and #02S is calculated by utilizing intake data from #101 and/or #102. TSS data may be obtained from either intake. Net discharge will be calculated individually. If no intake water was used in this discharge, a net allowance is not allowed and the facility will report "0" for intake and will report the same value for gross and net.

EDMR Data Entry: The parameter code for TSS is 00530, to reduce confusion, the monitoring location code is tied to the reporting type necessary from the facility.

Permit Parameter	units	Daily Max	Monthly Average	Monitoring Location Code in eDMR
Total Suspended Solids – Intake	mg/L	*	*	influent
Total Suspended Solids – Gross Discharge	mg/L	*	*	end of pipe
Total Suspended Solids – Net Discharge ††	mg/L	100	30	net effluent

OUTFALL #003 – WASTEWATER

Modifications to this outfall's description includes the removal of chemical cleaning wastewater; additionally, special condition #010 removed the clause "Specific plans for discharging chemical cleaning wastewater from boilers shall be submitted to the Department's Southeast Regional Office at least 60 days prior to any such cleaning. Alternate monitoring requirements, additional effluent limitations, specified procedures, and any other necessary conditions may be required by the Department for the duration of the proposed discharge." The facility has agreed to containerize and remove all chemical cleaning wastewater. After installation of the SFCs, this facility will no longer sluice ash (slag) sluice water (5,654 gpm; 8.1 MGD removed) and is on schedule to meet the EPA compliance date for cessation pursuant to 40 CFR 423.13(k)(1)(i) for December 31, 2025. SFC wastewater discharges to #001 & #002 respectively. Coal pile runoff will be discharging under outfall #009.

OUTFALL #004 – "SLAG DEWATERING" POND

Outfall #004 was removed. UTM Coordinates: X = 808189, Y = 4046476. Table A-4 was removed from the permit. The diagram supplied with the modification indicates "slag dewatering pond". However, after obtaining further information on November 1 and 2, 2022, the facility indicated that is the name of the pond, but no longer is dewatering slag there. The facility has regraded the areas. See USACE Section 408 Authorization. Historical outfall #004 drainage area is 106 acres; the 10 year 24 hour event is approximately 11.5 MGD. The facility indicated that this area is remediated, capped, and vegetated.

USACE SECTION 408 AUTHORIZATION:

The May 29, 2020 CWA Section 408 permission allows AECI under authorization from USACE for the alteration or occupation or use of the project if USACE determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project. The Mississippi River and Tributaries system, the federally authorized civil works project proposed for alteration, provides for managing flood risks to lands outside of the levees from floodwaters of the Mississippi River. Federal responsibility extends 15 feet from the landside berm and 40 feet from the riverside toe of the levee. The proposed request involves four projects within USACE levee proximity associated with Coal Pile Upgrades that are necessary to maintain compliance with the facility's National Pollutant Discharge Elimination System Permit. These four projects are: 1) Lined Pond Closure, 2) Coal Pile Upgrades, 3) Pond 004 Closure and Reconfiguration, and 4) Projects Soil Borrow. The lined pond closure will include grading existing CCR (coal combustion residuals) within the lined pond to provide positive surface drainage that complies with the CCR Rule. The coal pile upgrades include installing a bottom liner to improve cleaning and maintenance. Pond 004 closure will entail removing the accumulated CCR material and contaminated soils. Once these are removed, protective soil will be installed, the perimeter berm will be raised to match the levee, a clay splitter dike will be installed and the northern half of the pond will be filled with soil for future CCR use. Throughout the Pond 004 closure and reconfiguration all activities are to occur within the limits of previously constructed elements. No material will be placed on the river side of the levee. Projects regarding the borrow soil will include creating two soil borrow ramps against the western slope of the levee. These ramps will allow access from borrow area C to the Lined Pond. The ramps will be removed once construction has been completed.

The USACE further describer that a decision on a Section 408 request is a federal action, and therefore subject to the National Environmental Policy Act (NEPA) and other environmental compliance requirements.

The scope of analysis for the NEPA and environmental compliance evaluations for the Section 408 review should be limited to the area of alteration and those adjacent areas that are directly or indirectly affected by the alteration. As the proposed project would not result in fill material being placed into any wetlands or waters of the U.S., a Section 404(b)(1) permit is not required from USACE Regulatory Branch. Similarly, a Water Quality Certification would not be required from the State of Missouri. Additionally, as the proposed Section 408 alteration is within the USACE project footprint, no known historic properties would be effected. Furthermore, the proposed Section 408 alteration was determined to have no effect on threatened or endangered species or their critical habitat pursuant to the Endangered Species Act. The decision on this Section 408 request is being analyzed in accordance with NEPA and is limited to the Section 408 boundaries described herein.

OUTFALL #006 – LANDFILL CONTACT STORMWATER
Added as Table A-5.1 in the permit.

Completed under antidegradation review #759. The contaminants of concern remain the same; the receiving stream has changed from a class C stream to the Mississippi River. The final rule for contact stormwater 11/03/2015, 80 FR, Page 67854 noted that EPA received public comments expressing concern that the proposed definition of combustion residual leachate would apply to contaminated stormwater. Although this was not EPA's intention, for the final rule, EPA revised the definition to make it clear that contaminated stormwater does not fall within the final definition of combustion residual leachate. Additional information gathered November 1 and 2, 2022 indicated that the stormwater flows from the top of the ash, into surface channels and is pumped and piped to the Mississippi River. The contact stormwater does not pass through the berm. UWL leachate is separate and is managed under permitted feature #011.

LOW-FLOW VALUES AND MIXING CONSIDERATIONS FOR OUTFALL #006:

Receiving stream	Low-Flow Values (CFS)			Zone of Initial Dilution (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(b)]			Mixing Zone (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(a)]		
	1Q10	7Q10	30Q10	1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
Mississippi River (P), #006	n/a	107,694	145,000	n/a	50	50	n/a	26923.5	36250

OUTFALL #006 RPA:

Parameter:	Units	CMC Acute	CCC Chronic	Listing	Daily Max	Monthly Average	n#	CV	n Min	n Max	MF	RWC Acute	RWC Chronic	RP
Aluminum (Al)	µg/L	750	n/a	AQL	8250.00	4112.27	1	0.600	630	630	13.2	755.7	1.5	Yes*
Arsenic (As)	µg/L	340	150	AQL	3739.97	1864.21	1	0.600	3.3	3.3	13.2	4.0	0.0	No
Arsenic (As)	µg/L	n/a	100	IRR	885126	441197	1	0.600	3.3	3.3	13.2	4.0	0.0	No
Boron (B)	µg/L	n/a	2000	AQL	17702523	8823955	1	0.600	2400	2400	13.2	2878.8	5.9	No
Cadmium (Cd)	µg/L	6.59	0.97	AQL	72.51	36.14	1	0.600	1	1	13.2	1.2	0.0	No
Chloride	mg/L	860	230	AQL	9460	4715.37	1	0.600	23	23	13.2	27.6	0.1	No
Chloride + Sulfate	mg/L	1000	n/a	AQL	11000	5483.03	1	0.600	1623	1623	13.2	1946.8	1946.8	Yes*
Chromium III	µg/L	2235.40	106.85	AQL	24589.21	12256.68	1	0.600	5	5	13.2	6.0	0.0	No
Chromium III	µg/L	n/a	100.00	IRR	885126	441197	1	0.600	5	5	13.2	6.0	0.0	No
Chromium VI Dissolved	µg/L	16	11	AQL	176.00	87.73	1	0.600	5	5	13.2	6.0	0.0	No
Copper (Cu)	µg/L	17.92	11.67	AQL	197.11	98.25	1	0.600	4.5	4.5	13.2	5.4	0.0	No
Cyanide (CN)	µg/L	22	5	AQL	242.00	120.63	1	0.600	5	5	13.2	6.0	0.0	No
Iron (Fe)	µg/L	n/a	1000	AQL	8851261	4411978	1	0.600	640	640	13.2	767.7	1.6	No
Lead (Pb)	µg/L	113.97	4.44	AQL	1253.64	624.89	1	0.600	1	1	13.2	1.2	0.0	No
Methylmercury (Hg)	µg/L	1.40	0.8	AQL	15.40	7.68	1	0.600	0.00202	0.002	13.2	0.0	0.0	No
Nickel (Ni)	µg/L	586.15	65.13	AQL	6447.63	3213.87	1	0.600	5	5	13.2	6.0	0.0	No
Selenium (Se)	µg/L	n/a	5	AQL	44256.31	22059.89	1	0.600	2.8	2.8	13.2	3.4	0.0	No
Sulfate	mg/L	n/a	250.00	DWS	2979208	1485009	1	0.600	1600	1600	13.2	1919.2	2.9	No
Zinc (Zn)	µg/L	149.95	148.73	AQL	1649.44	822.18	1	0.600	8	8	13.2	9.6	0.0	No
TRC - Warm	µg/L	19	11	AQL	209.0	104.18	1	0.600	240	240	13.2	287.9	0.6	Yes ⸸

* Showed positive RP, however, through best professional judgment, the parameter does not have RP currently. The multiplying factor for small data sets is automatically set at 13.2; however, the projected RWC is below the proposed WQBEL, therefore no RP. Not all RPAs hold valid results when data are limited. A multiplying factor of 13.1 is used for small (n=1) datasets; however, if additional data was collected, many multiplying factors are lowered to 1.5 or 2. When the discharge data is compared with the potential monthly average limits, the facility data is less than half of the monthly average. Because the data is very low compared to the potential limits, a BPJ decision of no RP is a more valid assessment of the actual RP of chloride plus sulfate, than the numeric RPA.

⸸ TRC data supplied in the application is anomalous; there is no expected source of TRC. Certain cross-sensitivities exist for the test, including color/turbidity, and other chemicals in the halogen group. See additional information below.

OUTFALL #006 SAMPLING AND REPORTING:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	NEW	ONE/MONTH	MONTHLY	24 HR. TOT
CONVENTIONAL							
CHEMICAL OXYGEN DEMAND (COD)	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
CHLORINE, TOTAL RESIDUAL (TRC)	µg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
OIL & GREASE	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
pH †	SU	* (MIN, MAX)		NEW	ONE/MONTH	MONTHLY	GRAB
TOTAL SUSPENDED SOLIDS (TSS)	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
NUTRIENTS							
AMMONIA AS N	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
KJELDAHL NITROGEN, TOTAL (TKN)	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
NITRATE PLUS NITRITE AS N	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
PHOSPHORUS, TOTAL P (TP)	mg/L	*	*	NEW	ONE/MONTH	MONTHLY	GRAB
OTHER							
WET TEST - ACUTE	TUa	*	-	NEW	ONE/YEAR	ANNUALLY	GRAB

* monitoring and reporting requirement only
† report the minimum and maximum pH values; pH is not to be averaged
new parameter not established in previous state operating permit

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow
In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to ensure compliance with permitted effluent limitations. If the facility is unable to obtain effluent flow, then it is the responsibility of the facility to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD), monthly monitoring.

CONVENTIONAL:

Chemical Oxygen Demand (COD)
Monitoring is included using best professional judgment. There is no numeric water quality standard for COD; however, increased oxygen demand may impact instream water quality. COD is also a valuable indicator parameter. COD monitoring allows the facility to identify increases in COD may indicate materials/chemicals coming into contact with stormwater causing an increase in oxygen demand. Increases in COD may indicate a need for maintenance or improvement of BMPs. The facility reported 90 mg/L in the application.

Chlorine, Total Residual (TRC)
The facility reported 240 µg/L in the application but follow up data does not show TRC presence above potential WQBEL limits of 209 µg/L daily maximum or 104 µg/L monthly average. The re-sample data were between 40 and 90 µg/L. However, monitoring is warranted. The facility should ensure that the QA/QC is performed correctly on the sampling device. Monitoring is necessary because certain cross-sensitive chemicals causing positive TRC results, such as iodide and bromine are also known to cause aquatic toxicity similarly to TRC. The data will be assessed in the renewal.

Oil & Grease
Monthly monitoring is necessary to determine appropriateness of best management practices. Ash is handled with machinery. Oil and grease is considered a conventional pollutant. Oil and grease is a comprehensive test which measures for gasoline, diesel, crude oil, creosote, kerosene, heating oils, heavy fuel oils, lubricating oils, waxes, and some asphalt and pitch. The test can also detect some volatile organics such as benzene, toluene, ethylbenzene, or xylene, but these constituents are often lost during testing due to their boiling points. An RPD on this parameter found no RP based on one sampling data point for the application which showed non-detect.

Oils and greases of different densities will possibly form sheen or unsightly bottom deposits at levels which vary from 10 mg/L. To protect the general criteria, it is the responsibility of the facility to visually observe the discharge and receiving waters for sheen or bottom deposits. The monitoring requirement this permit applies does not allow the facility to violate general criteria pursuant to 10 CSR 20-7.015(4) even if data provided are below the WQS.

pH
pH is a fundamental water quality indicator therefore monitoring is required.

Total Suspended Solids (TSS)
Monitoring required to determine solids composition of discharge. There is no numeric water quality standard for TSS; however, sediment discharges can negatively impact aquatic life habitat. TSS is also a valuable indicator parameter. TSS monitoring allows the facility to identify increases in TSS indicating uncontrolled materials leaving the site. Increased suspended solids in runoff can lead to decreased available oxygen for aquatic life and an increase of surface water temperatures in a receiving stream. Suspended solids can also be carriers of toxins, which can adsorb to the suspended particles; therefore, total suspended solids are a valuable indicator parameter for other pollution. The facility reported 30 mg/L in the application.

NUTRIENTS:

Ammonia, Total as Nitrogen
Other nitrogen species are present in this discharge therefore monthly monitoring is required per 10 CSR 20-7.015(9)(D)8.B. The facility reported <0.1 mg/L in the application.

Kjeldahl Nitrogen, Total (TKN)
Nitrogen is present in this discharge therefore monthly monitoring is required per 10 CSR 20-7.015(9)(D)8.B. The facility reported 3.3 mg/L in the application.

Nitrate plus Nitrite
Other nitrogen species are present in this discharge therefore monthly monitoring is required per 10 CSR 20-7.015(9)(D)8.B. The facility reported <0.02 mg/L in the application.

Phosphorus, Total P (TP)
Phosphorus is present in this discharge therefore monthly monitoring is required per 10 CSR 20-7.015(9)(D)8.B. The facility reported 0.44 mg/L in the application.

OTHER:

Whole Effluent Toxicity (WET) Test, Acute
A WET test is a quantifiable method to conclusively determine if discharges from the facility cause toxicity to aquatic life by itself, in combination with, or through synergistic responses, typically when mixed with receiving stream water. Under the CWA §101(a)(3), requiring WET testing is reasonably appropriate for Missouri State Operating Permits to quantify toxicity. WET testing is also required by 40 CFR 122.44(d)(1) when RP is found. WET testing ensures the provisions in 10 CSR 20-6 and Missouri's Water Quality Standards in 10 CSR 20-7 are being met; the acute WQS for WET is 0.3 TUa. Under 10 CSR 20-6.010(8)(A)4, the Department may require other terms and conditions it deems necessary to ensure compliance with the CWA and related regulations of the Missouri Clean Water Commission. Missouri Clean Water Law (MCWL) RSMo 644.051.3 requires the Department to set permit conditions complying with the MCWL and CWA. 644.051.4 RSMo specifically references toxicity as an item the Department must consider in permits (along with water quality-based effluent limits); and RSMo 644.051.5 is the basic authority to require testing conditions. Requirements found in the federal application requirements for POTWs (40 CFR 122.21(j)(5)) do not apply to industrial facilities, therefore WET testing can be implemented on a case by case basis following the factors outlined below. Annual testing is the minimum testing frequency if reasonable potential is found; monitoring requirements promulgated in 40 CFR 122.44(i)(2) state "requirements to report monitoring results shall be established on a case-by-case basis with a frequency dependent on the nature and effect of the discharge, but in no case less than once per year." To determine reasonable potential, factors considered are: 1) history of toxicity; 2) quantity and quality of substances (either limited or not) in the permit with aquatic life protections assigned; and 3) operational controls on toxic pollutants. See Part III under REASONABLE POTENTIAL for additional information. A facility does not have to be designated as a major facility to receive WET testing; and being a major facility does not automatically require WET testing. Additionally per 40 CFR 122.44(d)(1)(v), limits on whole effluent toxicity are not necessary where the permitting authority demonstrates in the fact sheet, using the procedures in 40 CFR 122.44(d)(1)(ii) of this section, that chemical-specific limits or specified operational controls are sufficient to attain and maintain applicable numeric and narrative water quality standards.

If WET limits are applied to this facility, follow up testing applies. When a facility exceeds the TU established in the permit, three additional follow-up tests are triggered.

The follow up test results do not negate the initial testing result. If the facility is within the prescribed TU limit for all three follow up tests, then no further testing is required until the next regularly scheduled tests. If one or more additional tests exceed the TU limit, the facility may consider beginning the Toxicity Identification Evaluation (TIE) and Toxicity Identification Reduction (TRE) processes instead of waiting for three consecutive TU exceedances. The TIE and TRE process can take up to two years, especially when toxicity is variable or transient. We urge facilities to work closely with their WET testing laboratory to follow nationwide guidance for determining causes of toxicity and curative activities to remove toxicity. Additional wastewater controls may be necessary; and while, generally, no Construction Permit (CP) is required for adding treatment at industrial facilities, the facility may check with the Engineering Section to determine a plan of action.

If WET testing failures are from a known toxic parameter, and the facility is working with the Department to alleviate that pollutant's toxicity in the discharge, please contact the Department prior to conducting follow-up WET testing. Under certain conditions, follow-up testing may be waived when the facility is already working to reduce and eliminate toxicity in the effluent. For the purposes of reporting, the laboratory may supply either the TU value, the LC_{50}, or the NOEC. If the laboratory only supplied the LC_{50} or the NOEC value, the toxic unit is calculated by $100/LC_{50}$ for acute tests, or 100/NOEC for chronic tests. The TU value is entered in the eDMR system. Reports showing no toxicity are usually entered as <1.

✓ Applicable; WET testing is found in this modified permit at outfall #006.

Monitoring is required to determine if reasonable potential exists for the discharge to cause toxicity within the receiving stream as there are toxic pollutants in this outfall. For classified streams with mixing considerations, the Allowable Effluent Concentration (AEC)% is determined by: (4.998 CFSdf / (49.97548378 CFSzid +4.998 CFSdf)) = 9%. 10 CSR 20-7.015((9)(L)4.A. states the dilution series must be proportional. Each dilution was determined by multiplying or dividing 2 from the AEC and then each consecutive value. The dilution series is 2.25, 4.5, 9, 18, 36%. Special condition #26 was added to the permit.

OUTFALL #008 – NON-CONTACT STORMWATER RUNOFF AT UWL

Outfall #008 was removed from Table A-5 in favor of more stringent best management practices. The best management practices required are stipulated as special condition #27. Monthly BMP inspections, if performed correctly, are more effective than quarterly numeric monitoring. The facility will maintain vegetation, maintain grade, ensure no moderate or severe erosion is occurring (and provide remedial measures if there are signs of erosion) and slow water velocity by using rock-check dams if necessary.

Outfall #008 was moved approximately 720 feet north, this is a non-contact stormwater location.

Outfall #008 is a non-contact stormwater area; these are managed under Specific Best Management Practices. See special condition #27.

OUTFALL #009 – COAL PILE RUNOFF

Original table A-6 is maintained for coal pile runoff and other miscellaneous flows include heavy machinery wash and coal handling dust suppression water. This outfall also discharges surrounding area industrial stormwater. These changes were carried out under ACT #759. The facility proposes to discharge coal pile runoff (4242 gpm), coal handling dust suppression water (32-480 gpm), and heavy machinery wash (98 gpm). This is a total of 6.94 MGD.

The coal pile runoff pond is constructed of concrete and is not subject to a construction permit per 644.051 RSMo as it is not an earthen basin and part of an industrial site. The coal pile runoff pond will has an approximate capacity of 16.6 MGD.

The citations in the fact sheet are now outdated for this outfall. Given the piping and treatment changes, the coal pile runoff is technically now considered a new source pursuant to 40 CFR 122.2 and 40 CFR 122.29(b)(1)(ii). All citations for this type of categorical wastewater now fall under 40 CFR 423.15(b) et seq. The NSPS under this ELG are not more restrictive than the historical BAT effluent limits. An environmental impact statement pursuant to 40 CFR 122.29(c)(1)(ii) is not required as this is not a federal action.

The facility continues to use BULAB 5086 which contains polyaluminum hydroxychloride therefore aluminum monitoring will remain.

OUTFALL #010 – NON-CONTACT STORMWATER FROM HISTORICAL ASH POND

The October 6, 2021 Antidegradation Applicability Review, ACT #1058, indicated Associated Electrical Cooperative, Inc. (AECI) is seeking to establish Outfall 010 as a stormwater outfall that will discharge no contact stormwater from the Closed Inactive Lined Ash Pond (ILAP) and the Raw Water Pond (RWP). Outfall 003 received water from the RWP and the ILAP. Review of Discharge Monitoring Report for Outfall 003 for the past 5 years shows only a single effluent limit exceedance for Oil and Grease in October of 2019. AECI stated the ILAP completed closure in January 2021 in accordance with 40 CFR 257.102.
The facility indicated this closure included the grading of existing Coal Combustion Residuals (CCR) for subgrade elevations, the installation of geomembrane, cover soils, and the establishment of vegetation. A compliance website is maintained by AECI that describes the closure plan and CCR closure related activities. The Department reviewed the closure components by comparing the activities with 10 CSR 20-6.010(12). Because the waste remains in place, the ash waste mass is not considered closed pursuant to Missouri's rules, therefore will have a permit in perpetuity unless the waste is removed. However, the ash is no longer exposed to stormwater therefore this outfall is a non-contact stormwater outfall.

40 CFR 257 Subpart D is a self-implementing regulation and the Department has not made any determinations regarding this regulation. Missouri has not established a state coal ash program nor is Missouri required to establish any such program. Therefore, the federal coal ash regulations in 40 CFR 257 Subpart D are not managed by Missouri. The federal coal ash regulations are self-implementing. A self-implementing regulation automatically applies to all applicable facilities with no permit or other type of initiating document necessary to establish conditions. A self-implementing regulation requires facilities to follow the rules, self-manage all documents, reporting, and compliance requirements.

The RWP was used as a raw water source and had well water pumped into the basin periodically to make the RWP more habitable for a fish population. The facility no longer adds supplemental well water to the Raw Water Pond. No treatment is anticipated for this discharge other than settling incidental to the pond residence time. The proposed upgrade will not require an antidegradation review according to Missouri Antidegradation Rule and Implementation Procedure since the proposed discharge involves non-contact stormwater only.

Outfall #010 is a non-contact stormwater areas; these are managed under Specific Best Management Practices. See special condition #27.

PART III – MODIFICATION ADMINISTRATIVE REQUIREMENTS

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE:
The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing. The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

40 CFR 122.62 says: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-D/section-122.62 When a permit is modified, only the conditions subject to modification are reopened. Therefore, the Department will only respond to comments pertaining to changes noted in PART II MODIFICATION RATIONALE section.

- ✓ The Public Notice period for this operating permit was from 10 March, 2023 to 10 April 2023; one third party comment letter was received; and the EPA provided an Interim Objection. See Part IV below.

DATE OF FINAL STATEMENT OF BASIS: AUGUST 18, 2023

COMPLETED BY:
PAM HACKLER, ENVIRONMENTAL SCIENTIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL UNIT
(573) 526-3386
pam.hackler@dnr.mo.gov

PART IV – POST PN ADMINISTRATIVE REQUIREMENTS

GREAT RIVERS ENVIRONMENTAL LAW CENTER AND SIERRA CLUB

Generally, Sierra Club's comments (I through IV) did not address provisions which were modified in this permit action therefore no responses on the Department's behalf were warranted. The comment the Department did address (V, below) pertained to Title 6 and Environmental Justice.

V. MDNR Must Ensure the Draft Permit Protects Vulnerable Communities and Complies with Title VI.

Health Risks and Social Costs Associated with Coal-Fired Power Plants

AECI is an electric generating station located in New Madrid County, Missouri, on the south side of New Madrid County. Its two boilers burn coal. The Facility also stores, crushes, and conveys coal; and utilizes several large petroleum, ethylene glycol, and sulfuric acid storage tanks. Although coal plants are commonly thought of major air polluters, they can also have devastating impacts on water supplies. "[P]ower plants discharge large wastewater volumes, containing vast quantities of pollutants, into waters of the United States. The pollutants include both toxic and bioaccumulative pollutants such as arsenic, mercury, selenium, chromium, and cadmium. Today, these discharges account for about 30 percent of all toxic pollutants discharged into surface waters by all industrial categories regulated under the CWA. Coal plants frequently pollute waterways, drinking water, and fishing and swimming areas with the heavy metals chromium, molybdenum, nickel, selenium, mercury, arsenic, cadmium, thallium, lead, arsenic and boron. Consistent with this analysis, as outlined above, AECI discharges many of these pollutants into the Mississippi River and the local groundwater, which local residents use for fishing, drinking and recreation.

Exposure to the substances discharged by AECI, via absorption through the skin or through ingestion of contaminated drinking water, is associated with a variety of negative health effects. Consuming water or fish contaminated with these substances can lead to cancer, cardiovascular disease, neurological disorders, kidney and liver damage, and lower IQs in children. Moreover, exposure to heavy metals in particular through multiple pathways can lead to birth defects, cancer, and death among other effects. Heavy metals can also get into the food chain, traveling from the water to fish, predators, and humans who eat the fish. These heavy metals then accumulate in the body, causing further harm. Additionally, arsenic causes an increased risk of multiple cancers including kidney and prostate cancer, as well as liver disease, anemia, and gangrene. These are risks MDNR will force the area community to assume unless it takes stricter action against AECI in the Draft Permit.

Finally, power plant pollution raises municipal water bills. This happens when water treatment plants must do additional work and spend additional money to make sure that people are receiving water that is safe to drink. As a result, insufficient pollution restrictions in the Draft Permit have the potential to impact the budgets of adjacent residents, many of whom are already in a lower socioeconomic bracket.

The Draft Permit Will Impact Several Environmental Justice Communities.

New Madrid County contains several low-income, minority communities that have been historically and disproportionately impacted by pollution, raising the stakes for Missouri in issuing permits in the County.

Howardville

Close to half, or 43% of the residents of the New Madrid County community of Howardville are persons of color. This is a significantly higher minority population than is observed in the rest of the State. Furthermore, many Howardville residents are also economically depressed: 61% of Howardville's population is considered to be low-income, which is significantly greater than the state average of 31%. Further, it is notable that a quarter of the Howardville population is under 18 years of age, and 15% of this population is 4 years of age or younger. It is also clear that Howardville residents are also disproportionately affected by pollution: the community is in the 75th percentile for many of EPA's environmental justice indices including wastewater discharge. These factors make it clear that Howardville residents suffer a cumulative pollution burden, one which will magnify the adverse impacts from the Draft Permit.

Marston

More than a third, or 35% of the residents of the New Madrid County community of Marston are persons of color. This is a significantly higher minority population than is observed in the rest of the State. Furthermore, many Marston residents are also economically depressed: 59% of Marston's population is considered to be low-income, which is significantly greater than the state average of 31%. Further, it is notable that 32% of Marston's population is under 18 years of age, and 8% of this population is 4 years of age or younger. It is also clear that Marston residents are disproportionately affected by pollution: the community is in the 50th percentile or above for most of EPA's environmental justice indices including wastewater pollution. These factors make it clear that Marston residents also suffer a cumulative pollution burden, one which will magnify the adverse impacts from the Draft Permit.

New Madrid City

More than a third, or 38% of the residents of the City of New Madrid are persons of color. This is a significantly higher minority population than is observed in the rest of the State. Furthermore, many New Madrid City residents are also economically depressed:

48% of New Madrid City's population is considered to be low-income, which is significantly greater than the state average of 31%. Further, it is notable that 16% of the New Madrid City population is under 18 years of age, and 5% of this population is 4 years of age or younger. It is also clear that New Madrid City residents are also disproportionately affected by pollution: the community is in the 75th percentile for many of EPA's environmental justice pollution indices including wastewater pollution. These factors make it clear that New Madrid City residents also suffer a cumulative pollution burden, one which will magnify the adverse impacts from the Draft Permit.

The Draft Permit Fails to Comply with Title VI.
MDNR has violated Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d, and 40 C.F.R. Part 7 by releasing the Draft Permit 1) without complying with any of the EPA procedural safeguard regulations found in 40 C.F.R. Part 7 to prevent discrimination; and 2) by failing to analyze whether the Draft Permit causes disproportionate and disparate environmental and human health effects on the environmental justice communities in New Madrid County. MDNR must rectify these violations to avoid any unlawful discrimination by 1) implementing a Title VI program that complies with EPA regulations before issuing the Draft Permit in final form and 2) including in the Draft Permit an analysis of whether the permit causes disproportionate or disparate environmental or human health impacts on low-income communities of color in the County.

Recipients of federal funding are prohibited from taking actions that have a discriminatory impact on people of color. Title VI of the Civil Rights Act of 1964 states: No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination under any program or activity receiving any Federal financial assistance.

EPA's implementing regulations further prohibit recipients of EPA funding from discriminating. Specifically, EPA's Title VI regulations provide that an EPA funding recipient: shall not use criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination because of their race, color, national origin, or sex, or have the effect of defeating or substantially impairing accomplishment of the objectives of the program or activity with respect to individuals of a particular race, color, national origin, or sex.

EPA's regulations make clear that discrimination on the basis of race is a violation of Title VI whether such discrimination is the purpose of the decision or its effect. As a condition of receiving federal funding, recipient agencies such as MDNR must comply with EPA's Title VI regulations, which are incorporated by reference into the grants. These regulations proscribe discrimination on the basis of race, color or national origin by any program or agency receiving financial assistance from the EPA. In other words, Title VI creates for recipients a nondiscrimination obligation that is contractual in nature, in exchange for Federal funding. Acceptance of EPA funding creates an obligation on the recipient to comply with the regulations for as long as that funding is provided. In particular, a state agency accepting EPA funding may not take any action that is intentionally discriminatory or that will have a discriminatory effect based on race, color, or national origin. MDNR, a state agency, is a recipient of federal funds governed by these requirements.

It does not appear that MDNR has conducted any of the safeguard procedures or analyses required by Title VI and EPA's implementing regulations in preparing the Draft Permit. These include, but are not limited to, facilitating informational meetings for New Madrid County low income communities of color about the Draft Permit and the impacts it might have, as well as providing public information about the Draft Permit in applicable languages other than English and offering translators and interpreters at public meetings if necessary. The issuance of a generic online public notice to persons who have signed up for an email service is not sufficient to meet this need because minority and low-income communities are the least likely groups to be able to be aware of or effectively navigate to MDNR's website, let alone have access to email and computer services. For example, persons with limited financial or technical resources may be in need of additional assistance in order to be aware of the Draft Permit, or to sign up for or receive notification emails. Further, MDNR's acceptance of written comments on the Draft Permit is also an insufficient way to solicit input from impacted communities, as such persons also may lack the ability to effectively review the Draft Permit, ascertain its impact on their neighborhoods, or to prepare written comments so as to be heard in response thereto. Many residents living in the impacted communities fall within this category, but no such efforts appear to have been undertaken by MDNR to make appropriate provisions for these limitations.

MDNR also must include a consideration and analysis of the disparate and cumulative impacts that the Draft Permit may have on low-income communities and/or communities of color in New Madrid County. The Draft Permit does not raise or identify the issue of disproportionate impacts at all, much less conduct a disproportionate impacts analysis for the impact of the permit on the minority and low-income communities located in New Madrid County. Without consideration of these cumulative and disparate impacts, the Draft Permit may have an adverse impact that is discriminatory on the bases of race, color, or national origin, and on the basis of economic status. MDNR must undertake consideration of such impacts prior to issuing a final permit to AECI.

These concerns are made more egregious by the fact that these very same environmental justice issues have been brought to MDNR's attention by the undersigned on numerous occasions, and in particular with respect to the New Madrid County area when comments were submitted to MDNR's Proposed State Implementation Plan Revision for New Madrid County for the 2010 Sulfur Dioxide

Standard. MDNR certainly cannot at this point claim ignorance of its environmental justice obligations in permitting or the vulnerability of the New Madrid area to cumulative pollution burdens.

Response to V.
Environmental Justice Concerns
Regarding all comments related to environmental justice, the Department has no federal or state statutory or regulatory basis to conduct itself, or require the facility to conduct, any analysis, including cumulative impacts analysis, as a direct result of federal environmental justice policy; a policy is not regulation. Additionally, if the Department acted in such a manner without statutory or regulatory authority, it would further have no basis to articulate the results of that analysis into new or different permit conditions. In short, the Department does not have the authority to establish the additional conditions that the commenters assert should be part of the permitting obligation.

There are fundamental differences between Title VI, which is applicable federal law, and environmental justice, which is federal policy guidance. As discussed above, the Department can only impose permit conditions for which there is basis in statute or regulation. To the extent the Commenters suggest that the Department should violate state law in order to meet the spirit of a federal policy, the Department does not have the authority to do so.

Title VI of the Civil Rights Act of 1964
It is important to note that presence of a pollutant does not automatically equate to exposure, risk, harm, disparity, or adversity. The permit review and issuance process are facially neutral actions, and therefore the Title VI analysis must be limited to whether there is adversity or harm, disparity, and causation. The Department used the same permit practice with this permit, as with other permits across the state. This impartiality ensures that this permit's decisions do not have a sufficiently adverse or disparate effect based on race, color, national origin, or sex.

In a Title VI analysis, adversity exists if a fact-specific inquiry determines that the nature, size, or likelihood of the impact is sufficient to make it an actionable harm. The presence of a discharge or a regulated water contaminant source does not automatically equate to harm, much less actionable harm. The facility's operating permit implements the appropriate and relevant requirements, and the commenters have not presented any actionable or specific rationale to demonstrate specific harms.

EPA INTERIM OBJECTION LETTER, RESPONSES, AND CHANGES OF NOTE

EPA interim Objection, Statements, and Department's Responses.

On April 7, 2023, the Missouri Department of Natural Resources (Department) received an Interim Objection from the U.S. Environmental Protection Agency (EPA) regarding the proposed modification of the New Madrid Power Plant, MO-0001171, Missouri State Operating Permit. The Responses were sent 20 June 2023.

General Comment 1
EPA has reviewed the draft NPDES permit, the Statement of Basis, and Fact Sheet and note that many of the revisions made in the NPDES permit are not reflected in the Fact Sheet and/or in some instances, the Fact Sheet information conflicts with the proposed changes in the draft NPDES permit and how it is described in the Statement of Basis. EPA recommends the Fact Sheet be updated and made consistent with the draft NPDES permit and Statement of Basis.

Response to General Comment 1
The original fact sheet written for the last operating permit renewal has not changed. This is standard Department procedure so that the public and interested parties can review historical information related to the permit. Any changes due to the permit modification are listed in the statement of basis and supersede the original fact sheet.

General Comment 2
Additionally, to facilitate compliance with the CWA consistent with the Supreme Court's decision in Maui, EPA recommends that the facility identify and analyze any discharges to groundwater that reach waters of the United States and whether any of those discharges require an NPDES permit.

Response to General Comment 2
The Department notes that this action is not a permit renewal. This action is a permit modification to which groundwater requirements were not opened. As noted in Part III of the statement of basis for modification, "40 CFR 122.62 says: When a permit is modified, only the conditions subject to modification are reopened. Therefore, the Department will only respond to comments pertaining to changes noted in PART II MODIFICATION RATIONALE section." The Maui decision is not addressed because groundwater was not reopened in this permit modification. The next permit renewal will explore all applicable requirements at that time.

Request for Information 1
Outfalls 01S and 02S have been added to monitor the discharge to Outfall 001 from a newly installed submerged flight conveyer (SFC). The request for modification from the facility dated May 10, 2022, described the previous sluicing process to include a slag tank overflow to Outfall 001 and continual discharge of sluice water to Outfall 003. It is unclear from the information provided whether any of the discharge is "transport wastewater" (i.e., water that is in direct contact with the ash and excluding bottom ash purge water). EPA is seeking additional information to understand the nature of the wastewater from the SFC to be discharged to Outfall 001.

Response 1
Wastewater from the SFC is not sluice wastewater. An SFC does not meet the definition of a primary wetted ash system per 40 CFR 423.11(aa). Per EPA's definition, (dry bottom ash handling systems include all systems that do not generate bottom ash transport water (40 CFR 423.11(p)); these include completely dry ash handling systems, mechanical drag systems, and other mechanical removal systems. An SFC is a mechanical removal system for ash. Completely dry systems are generally reserved for fly ash. Bottom ash falls out of the bottom of the boiler and is hotter and heavier than fly ash; the bottom ash must typically be quenched before it can be removed by the mechanical system .

SFCs do not sluice ash. SFCs and similar drag chain-type technologies use quench water in bottom ash (40 CFR 423.11(f)) systems; the water-cooled ash is conveyed mechanically (not hydraulically), and is eventually placed into the landfill as "dry" ash. Clean Air Act regulations require that the ash be maintained with a minimal water content to prevent air pollution; see Part 70 Air Operating Permit OP2020-012.

Transport water per 40 CFR 423.11(p) does not include low volume (40 CFR 423.11(b)) waste source discharges. The September 2015 development document for 40 CFR 423: EPA-821-R-15-007 provides additional information related to dry handling systems. The quench water that SFCs generate is considered a low volume waste source, which requires monitoring for the pollutants identified under the 2015 new source performance standards (NSPS) for low volume waste sources per 40 CFR 423.15(b)(3).

EPA required, through issuance of revisions in 40 CFR 423 in 2015, that submerged flight conveyors (or other "dry" technologies) be installed by facilities to reduce pollutant discharges at all power plants by cessation of ash sluicing as soon as possible per 40 CFR 423.11(t). The January 1, 2020, permit special condition 9 established the "as soon as possible" date of December 31, 2023.

Outfall 001 contains SFC wastewater (quench water); Outfall 002 will in the future contain SFC wastewater (quench water). Iteratively, Outfall 003 will cease discharging sluice water upon the completion of installation of SFC for unit 002 (Outfall 002). With the ceasing of Outfall 003's discharge with the installation of the SFC unit for Outfall 002, there will be a reduction in volume and load of pollutants. Therefore, antidegradation is not applicable.

The facility needs this permit modification as soon as possible so that it can stop sluicing ash wastewater and reduce pollutants discharged to the environment.

Request for Information 2
Outfall 004 is described as "removed", however, the draft NPDES permit does not explicitly prohibit discharges from Outfall 004.

Response 2
Non-industrial stormwater may still discharge through Outfall 004. The permit no longer contains conditions relating to this outfall because it no longer meets the definition of industrial stormwater pursuant to 40 CFR 122.44(b)(14). To reduce confusion by inspectors or others on-site, a discharge is not prohibited because non-industrial precipitation still flows through the outfall. When a permit ceases to authorize an NPDES-qualifying discharge under Permit Shield Provisions (Clean Water Act §402(k)), no further NPDES-qualifying discharges are allowed.

After letter was sent, additional information was found. While the above is generally true when there is a stormwater component, it was determined that outfall #009 uses outfall #004's pipe. Outfall #009 is stormwater runoff from the coal pile area. See additional concerns and comments in the section below.

Request for Information 3
Outfall 006 is identified to discharge "landfill contact stormwater" from the Utility Waste Landfill (UWL). The UWL is described to contain coal combustion residual (CCR) waste. The Statement of Basis refers to a completed Antidegradation Review 759, however the attached Antidegradation Review 759 relates to the installation of the SFC and Outfalls 001 and 003. Please provide the Antidegradation Review related to Outfall 006.

Response 3
Landfill contact stormwater was discussed under the application for ACT 759 in addition to the SFCs and several other water flow changes. The application for ACT 759 is included in this response. The Department's decision regarding this water was that an antidegradation review was not required because, given the requested changes, the pollutant load was decreasing.

Request for Information 4
The request for modification from the facility dated May 10, 2022, explained that previously the "contact stormwater" from the UWL was pumped and discharged to Pond 003 and discharged through Outfall 003. The proposal is to instead reroute the "contact stormwater" from the UWL through Outfall 006 to the drainage conveyance for Outfall 003 to the Mississippi River. The Statement of Basis references information gathered on November 1 and 2, 2022, that describes the nature of the "contact stormwater" from the "top of the ash". Please provide this information.

Response 4
To differentiate between non-contact stormwater, contact stormwater, and leachate, the draft permit modification provided a discussion of the differences in these terms. Because leachate is defined as passing though the ash and berm (see 40 CFR 423.11(r)), the description of contact stormwater (not included in 40 CFR 423) and non-contact stormwater (also not included in 40 CFR 423) was provided within the draft to further clarify to the reader that the "top of the ash" was not leachate, but instead "contact" stormwater. The Department has determined that differences in pollutants are significant between these two types of stormwater not defined in 40 CFR 423. Information gathered on November 1, 2022, was verbal; the email from November 2, 2022, is included in this response.

Request for Information 5
Outfall 010 is identified as "non-contact stormwater runoff from historical ash pond" and will discharge from the CCR impoundment Pond 003 and Raw Water Pond. The Statement of Basis concludes that Antidegradation Applicability Review, ACT #1058 concluded an antidegradation review is not required "since the proposed discharge involves non-contact stormwater only. The conclusion described in the Antidegradation Applicability Review ACT #1058 relies on information related to the closure activity. Please provide the information used to support these conclusions.

Response 5
Closure in this instance means that the CCR is no longer exposed to surface precipitation because a vegetative cap is established. See also discussion regarding non-contact stormwater in response 4. The vegetative cap precludes stormwater from contacting the ash; therefore, the stormwater is non-contact and contains fewer pollutants than ash-contact stormwater. The Department's Engineering Section determined that non-contact stormwater was less contaminated than the previous discharge and a reduction in volume and load of pollutants was occurring. Therefore, antidegradation is not applicable. The application for ACT #1058 is included in this response.

POST OBJECTION DISCUSSION, INFORMATION REQUESTED BY EPA, AND CHANGES

1. The EPA requested a statement that all antidegradation analysis resulted in a finding of no antidegradation required.
   This was added to Part I of the statement of basis.

2. The EPA requested Outfall 004 needs to indicate CCR material was removed in the permit description; this was added to the FACILITY DESCRIPTION in the permit and then later deleted per the EPA's request.

3. The EPA requested Outfall 009 needs to state that it is using the same or existing outfall structure as Outfall 004 in the permit.
   This was added to the FACILITY DESCRIPTION in the permit.

4. The EPA questioned if there was an RP conducted for industrial stormwater part of Outfall 009.
   The RPA was conducted in 2019 and is not an open condition under this modification; however, the Department provided the information from 2019. In 2019, all data was used from outfall #003 to determine pollutants of concern at outfall #009. Even though outfall #003 contains numerous sources of wastewater, the data was sufficient because it would be overprotective of any findings of pollutants of concern from coal pile runoff. This modification identifies that outfall #003 historically contained coal pile runoff, and now coal pile runoff is diverted as a sole source outfall to outfall #009.

5. The EPA asked DNR to clarify that Pond 4 was reconfigured to a finishing pond in the permit by adding a statement to the FS.
   This was missed at the original drafting of this modification, however, this information was found in ACT#759 and was verified on 11 July 2023; the Facility identified key features on this map.

The map in Part I of the statement of basis was also updated; outfall #009 was further south than the true location.

6. The EPA questioned why Outfall 006 didn't include a limit for chloride + sulfate. What was the BPJ basis for this decision? The asterisk indicates that not all RPAs are valid. Additional language was added under the RPA table for outfall #006 at the asterisk.

7. The EPA requested that the Department "change groundwater monitoring language in Ponds 003 and 004 to add specific to prohibition to a subsurface water to surface water discharge.**"**

Response:

The EPA has clarified that it did not request a change to the ground water monitoring, but instead requested that it be expressly stated that the groundwater monitoring was limited to the state's authority to monitor and regulate groundwater under the Missouri Clean Water Law. The Department has noted that groundwater requirements were not opened during this modification and are pursuant to Missouri Clean Water Law and the state's authority to monitor and regulate groundwater, not the NPDES. 40 CFR 124.5(c)(2) states that only the conditions subject to the modification are reopened, therefore permit shield under the 2020 renewal still applies to those portions of the permit that were not opened under this modification.-Special Condition #1 was not opened in this modification; there are no additional specific requirements for groundwater monitoring for Ponds 003 and 004 found in the modified permit. The EPA as well as the Department must abide by federal regulations for NPDES permit actions. Additionally, the Department is seeking groundwater information over the course of this permit term; which ends December 31, 2024; less than 1.5 years from this modification. There is no need to prematurely rush a decision which must be made utilizing a full suite of data, science, and detailed information about the site. A Maui determination is a very involved process; and the facility did not request a Maui determination for this modification, nor the does the Department find it warranted at this time.

The Department implemented the appropriate and relevant permit requirements for groundwater in the January 1, 2020 permit which were not reopened in 2023. In 2019, when the permit was public noticed, no concerns were brought to the Department regarding the groundwater requirements.-The data obtained over the course of a full permit term will be evaluated in 2025; the data will be used to make scientifically defensible determinations relating to the groundwater.

Per 40 CFR 122.62(a), the federal regulations guardrail states from unduly opening permits; and this applies to opening parts of permits that are not being revised. A permit should be a standing document for a period of five years, then changed iteratively, when they are renewed. The Department is not allowed to modify a permit without cause. None of the causes listed at 40 CFR 122.62(a)(1) through (18) are causes that provide the Department a basis to open groundwater conditions in this modification. The EPA has not stated a discharge needs limiting, that substantial changes (other than those changed in this modification) have occurred, or that new information exists such that the "environmental effects are unacceptable". Additionally, there are no new applicable regulations, changes in the water quality standards, changes to the effluent limit guidelines, or that a new toxic parameter is being discharged. These guardrails protect the facility from Department and EPA overreach.

The 2019 fact sheet discussion does provide a review of the groundwater at the site; and the likelihood that contamination exists was presented. The volume and extensiveness of the contamination will be reviewed in the 2025 permit renewal for groundwater and will determine if a subsurface to surface water discharge exists. The future renewal will determine if there is reasonable potential for any subsurface discharges to cause or contribute to contamination in nearby surface waters.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0001171
NEW MADRID POWER PLANT

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified for less.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)(A)2.] a factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (MSOP or operating permit) listed below. A factsheet is not an enforceable part of an operating permit.

PART I. FACILITY INFORMATION

Facility Type:	Industrial – Major, Primary, Categorical; >1 MGD
SIC Code(s):	4911
NAICS Code(s):	221112
Application Date:	10/23/2015
Expiration Date:	04/21/2016
Last Inspection:	10/19/2016

FACILITY DESCRIPTION:
The New Madrid Power Plant (facility) is a steam electrical power generation facility primarily engaged in the generation of electricity for distribution and sale. This facility includes two (2) 615-megawatt coal-fired cyclone burner steam electric generating units (Unit 1 & Unit 2).

AECI has made the decision to install submerged flight conveyors for both units to meet ELG regulations of no discharge of pollutants from the sluicing of ash. The first will be installed in 2021 and the second will be installed in 2023.

The landfill is currently active. Cell 1 has almost reached capacity, and Cell 2 has started to receive ash. The stormwater from the Utility Waste Landfill (UWL) is currently pumped to pond 3 for discharge. To meet the CCR Rules, this operation will have to cease. The contact stormwater will be discharged through outfall #006. Outfalls for the UWL were placed in the permit around 2007-2008 timeframe. They were then removed and the decision was made to pump to pond 3 versus discharging out the new outfalls. The stormwater outfalls were reinstated in this permit. Contact stormwater will be discharged through outfall #006 (after approval). Non-contact stormwater will be discharged through outfall #008. Percolated leachate is not discharged and is collected in permitted feature #011 and reapplied to the open face(s) of the landfill.

Landfill leachate was identified as a pollutant source (not permissible for discharge) in this permit. Leachate collected in the settling basins has not been approved for discharge, however, leachate, contact stormwater, and landfill non-contact stormwater has been approved for discharge through outfall #003. Contact stormwater will need to be approved for discharge via an antidegradation review to move the discharge from outfall #003 to outfall #006. Historically, on April 3, 2009, the department received a letter dated March 31, 2009 indicating outfall #006 was eliminated. The letter indicated “Outfall #006 was added to the NPDES permit at the time the landfill was constructed. Due to an operational change, approved by the Solid Waste Management Program, this outfall was eliminated in the 2011 renewal”. However, this outfall represents stormwater associated with industrial activity (the landfill) therefore outfall #006 was reinstated in this renewal. While authorization is not yet provided, a placeholder was specified in the Facility Description part of the permit.

Outfall #010 was added to this permit to incorporate discharge from the raw water pond and remove it from outfall #003. Only stormwater and well water are introduced into the basin. Because fish live in the basin, the facility adds alluvial well water to the basin

to assure the fish have a sufficient water supply to survive droughts. The pond serving outfall #010 has an emergency overflow location but has not been used to date. The facility will be required to undergo an antidegradation review to discharge from this outfall.

For permitted feature #011, and for added clarity, the definition in 40 CFR 423.11(r) for combustion residual leachate is defined as "leachate from landfills or surface impoundments containing combustion residuals. Leachate is composed of liquid, including any suspended or dissolved constituents in the liquid, which has percolated through waste or other materials emplaced in a landfill, or that passes through the surface impoundment's containment structure (e.g., bottom, dikes, berms). Combustion residual leachate includes seepage and/or leakage from a combustion residual landfill or impoundment unit. Combustion residual leachate includes wastewater from landfills and surface impoundments located on non-adjoining property when under the operational control of the permitted facility." Currently, only one basin exists for leachate; the facility may use a frac tank during seasons of high infiltration, or may build a second leachate basin.

The charter number for the continuing authority for this facility is Q00101340; this number was verified by the permit writer to be associated with the facility and precisely matches the continuing authority reported by the facility. In accordance with 40 CFR 122.21(f)(6), the Department evaluated other permits currently held by this facility. This facility has the following permits: solid waste permit and air permit (OP2010-116B). Particulate control is provided by an electrostatic precipitator, and a selective catalytic reduction (SCR) device is used to control NOx emissions. https://dnr.mo.gov/env/apcp/permits/docs/aeci-newmadrid2010op.pdf. This permit authorizes certain wastewaters to be used for dust suppression. This facility has an effective land disturbance permit, MORA13701.

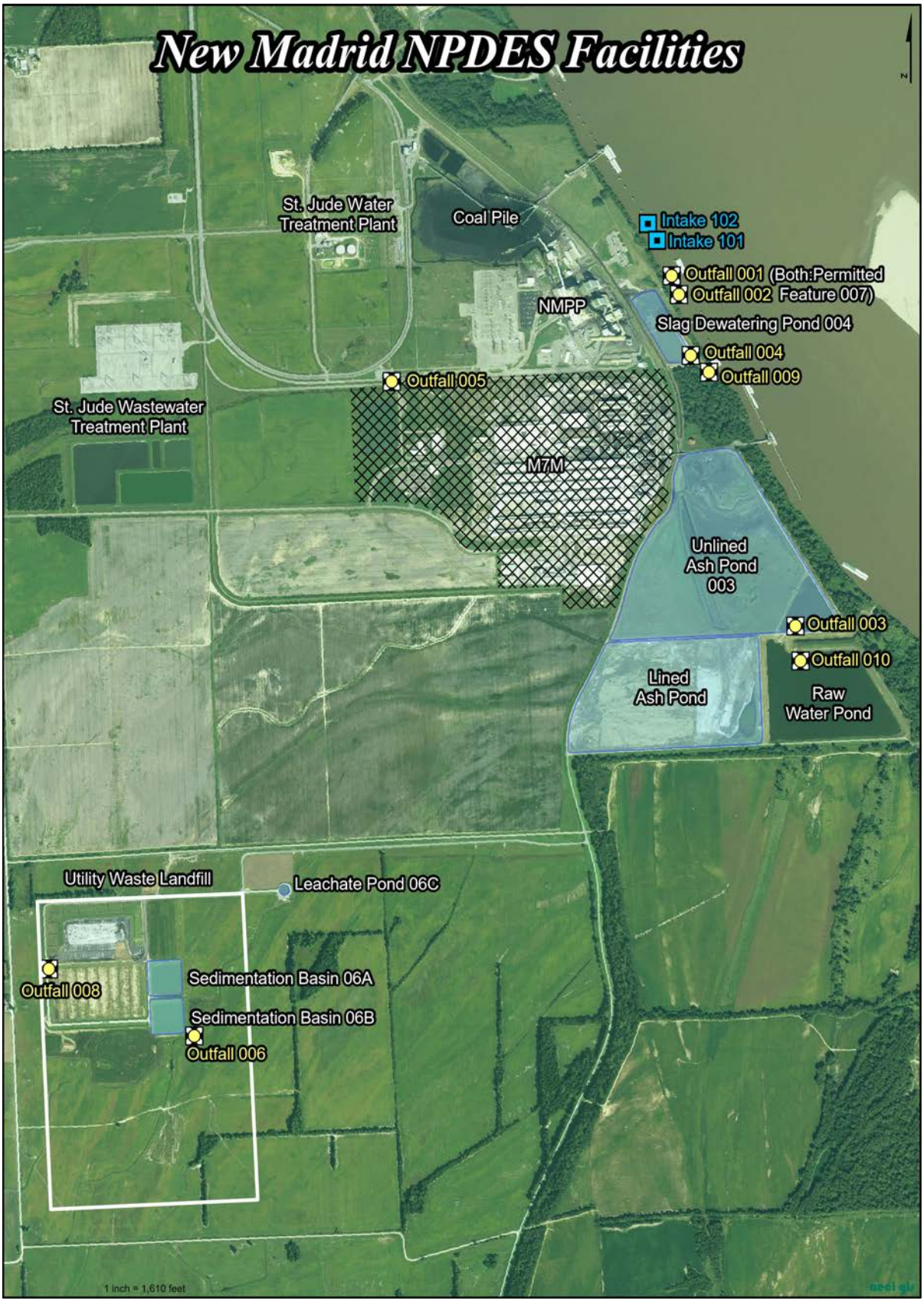
PERMITTED FEATURES TABLE:

OUTFALL	AVERAGE FLOW	DESIGN FLOW	TREATMENT LEVEL	EFFLUENT TYPE
#001	357.7 MGD 664.6 cfs	550 MGD 1021 cfs	see permit	Unit 1 once through cooling water; see permit.
#002	350.1 MGD 650.6 cfs	546.5 MGD 1015.5 cfs	see permit	Unit 2 once through cooling water; see permit.
#003	38 MGD	12 MGD	settling	ash settling pond #003; see permit.
#004	7.5 MGD	2.03 MGD	settling	boiler slag/bottom ash dewatering pond #004; see permit.
#005	n/a	8.3* MGD peak discharge	infiltration, dissipation, vegetative buffer	stormwater run-off from plant site; see permit. Flow based on 560 acres, c=0.1 (due to flat and vegetated areas)
#006	n/a	1.6* MGD peak discharge	settling	UWL contact stormwater; two independent basins
#007	n/a	n/a	n/a	compliance point for thermal discharges
#008	new/unknown	3.2* MGD peak discharge	BMPs	landfill non-contact stormwater
#009	0.427 MGD	16.6 MGD	BMPs	coal pile runoff (will be disconnected from outfall #003)
#010	0.685 MGD	26.6 MGD	BMPs	raw water pond: stormwater, stormwater surrounding area, and well water (will be disconnected from outfall #003)
#011	0	0	no discharge	leachate
#101, #102	intake	intake	intake	cooling water intake structures

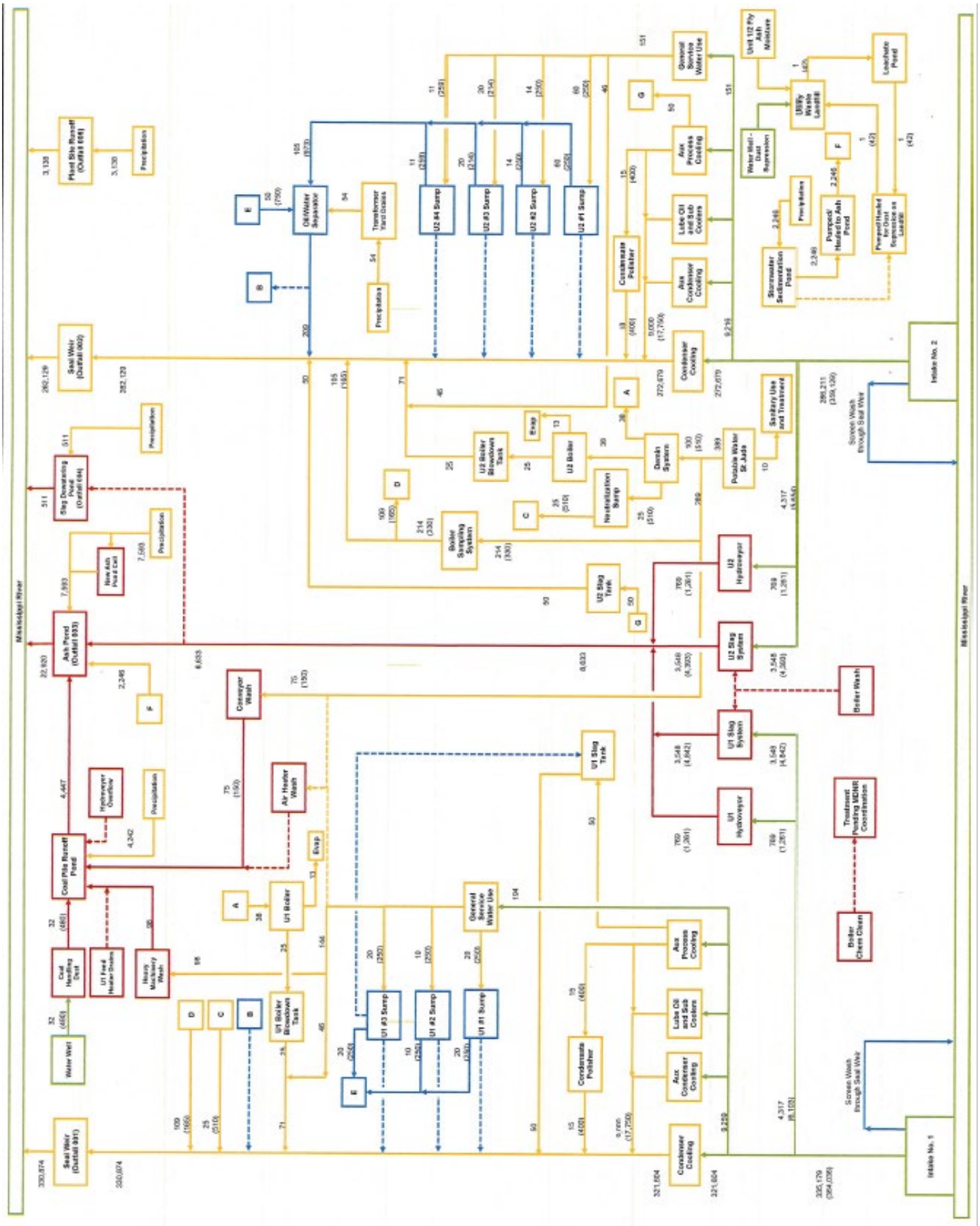
* peak stormwater discharges were calculated using the rational equation https://www.lmnoeng.com/Hydrology/rational.php
BMPs are best management practices.

FACILITY PERFORMANCE HISTORY & COMMENTS:
The electronic discharge monitoring reports were reviewed for the last five years. No exceedances were noted. A letter of warning issued in 2016 indicated the facility was not using composite sampling method for sampling the intake water as was provided in the permit. The facility immediately corrected the procedure. This permit changes the sampling type to grab as a grab sample is adequate to classify the pollutants at this site. This facility does not have contaminants identified at 40 CFR 423.13(g) or 40 CFR 423.13(i); the facility does not have flue gas desulphurization or flue gas mercury control wastewater. Historically, used oil was added to the coal pile as an additional fuel source, however, procedures have changed and they no longer practice this.

FACILITY MAP:



WATER BALANCE DIAGRAM:



PART II. RECEIVING WATERBODY INFORMATION

RECEIVING WATERBODY'S WATER QUALITY:
The USGS has data available for the Mississippi River. Please visit USGS.gov to download the applicable data.

303(D) LIST:
Section 303(d) of the federal Clean Water Act requires each state identify waters not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock, and wildlife. The 303(d) list helps state and federal agencies keep track of impaired waters not addressed by normal water pollution control programs. http://dnr.mo.gov/env/wpp/waterquality/303d/303d.htm

✓ Not applicable; this facility does not discharge to an impaired segment of a 303(d) listed stream.

TOTAL MAXIMUM DAILY LOAD (TMDL):
A TMDL is a calculation of the maximum amount of a given pollutant a water body can absorb before its water quality is affected; hence, the purpose of a TMDL is to determine the pollutant loading a specific waterbody can assimilate without exceeding water quality standards. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan or TMDL may be developed. The TMDL shall include the WLA calculation. http://dnr.mo.gov/env/wpp/tmdl/

✓ Applicable; the Mississippi River is associated with the EPA approved TMDL for chlordane and PCBs. It is unlikely this facility was a contributor of the impairment or would contribute to the impairment. This permit contains exclusions for PCB discharge as is required by 40 CFR 423.

UPSTREAM OR DOWNSTREAM IMPAIRMENTS:
THE PERMIT WRITER HAS REVIEWED UPSTREAM AND DOWNSTREAM STREAM SEGMENTS OF THIS FACILITY FOR IMPAIRMENTS.

✓ **THE PERMIT WRITER HAS NOTED NO UPSTREAM IMPAIRMENTS NEAR THIS FACILITY.**

✓ **THE PERMIT WRITER HAS NOTED DOWNSTREAM OF THE FACILITY THE STREAM HAS A TMDL; SEE ABOVE.**

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:
Per Missouri's Effluent Regulations [10 CSR 20-7.015(1)(B)], waters of the state are divided into seven categories. This facility is subject to effluent limitations derived on a site specific basis which are presented in each outfall's effluent limitation table and further discussed in Part IV: Effluents Limits Determinations.

✓ Missouri or Mississippi River

✓ All Other Waters

RECEIVING WATERBODY TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES	DISTANCE TO SEGMENT	12-DIGIT HUC
#001, #002, #003, #004, #009	Mississippi River	P	3152	DWS, GEN, HHP, IND, IRR, LWW, SCR, WBC-B, WWH (ALP)	0 mi	Donaldson Point – Mississippi River 08010100-0301
#005, #008	8-20-13 MUDD V1.0	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (ALP)	0.1 mi	Portage Open Bay 08020204-0608
#006	8-20-13 MUDD V1.0	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (ALP)	0 mi	

n/a not applicable

Classes are hydrologic classes as defined in 10 CSR 20-7.031(1)(F). L1: Lakes with drinking water supply - wastewater discharges are not permitted to occur to L1 watersheds per 10 CSR 20-7.015(3)(C); L2: major reservoirs; L3: all other public and private lakes; P: permanent streams; C: streams which may cease flow in dry periods but maintain pools supporting aquatic life; E: streams which do not maintain surface flow; and W: wetland. Losing streams are defined in 10 CSR 20-7.031(1)(O) and are designated on the Losing Stream dataset or determined by the Department to lose 30% or more of flow to the subsurface.

WBID = Waterbody Identification: Missouri Use Designation Dataset per 10 CSR 20-7.031(1)(Q) and (S) as 8-20-13 MUDD V1.0 or newer; data can be found as an ArcGIS shapefile on MSDIS at ftp://msdis.missouri.edu/pub/Inland_Water_Resources/MO_2014_WQS_Stream_Classifications_and_Use_shp.zip; New C streams described on the dataset per 10 CSR 20-7.031(2)(A)3. as 100K Extent Remaining Streams.

Per 10 CSR 20-7.031, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1st classified receiving stream's beneficial water uses are to be maintained in the receiving streams in accordance with [10 CSR 20-7.031(1)(C)]. Uses which may be found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.: **ALP** = Aquatic Life Protection (formerly AQL; current uses are defined to ensure the protection and propagation of fish shellfish and wildlife, further subcategorized as: WWH = Warm Water Habitat; CLH = Cool Water Habitat; CDH = Cold Water Habitat; EAH = Ephemeral Aquatic Habitat; MAH = Modified Aquatic Habitat; LAH = Limited Aquatic Habitat. This permit uses ALP effluent limitations in 10 CSR 20-7.031 Table A1-A2 for all habitat designations unless otherwise specified.
10 CSR 20-7.031(1)(C)2.: Recreation in and on the water
WBC = Whole Body Contact recreation where the entire body is capable of being submerged;
WBC-A = whole body contact recreation supporting swimming uses and has public access;
WBC-B = whole body contact recreation not supported in WBC-A;
SCR = Secondary Contact Recreation (like fishing, wading, and boating)
10 CSR 20-7.031(1)(C)3. to 7.:
HHP (formerly HHF) = Human Health Protection as it relates to the consumption of fish and drinking of water;
IRR = irrigation for use on crops utilized for human or livestock consumption
LWW = Livestock and Wildlife Watering (current narrative use is defined as LWP = Livestock and Wildlife Protection);
DWS = Drinking Water Supply
IND = industrial water supply
10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Tables A1-B3 currently does not have corresponding habitat use criteria for these defined uses): WSA = storm- and flood-water storage and attenuation; WHP = habitat for resident and migratory wildlife species; WRC = recreational, cultural, educational, scientific, and natural aesthetic values and uses; WHC = hydrologic cycle maintenance.
10 CSR 20-7.031(6): **GRW** = Groundwater

RECEIVING WATERBODY MONITORING REQUIREMENTS:
Receiving water monitoring is required to determine thermal compliance.

THERMAL MIXING CONSIDERATIONS:
This facility has thermal discharge limitations. See outfalls #001, #002, and #007 for thermal limitations and derivation.

MIXING CONSIDERATIONS:
For outfalls #005, and #006, mixing zone and zone of initial dilution are not allowed per 10 CSR 20-7.031(5)(A)4.B.(I)(a) and (b), as the base stream flow does not provide dilution to the effluent.

RECEIVING STREAM LOW-FLOW VALUES:

OUTFALL	RECEIVING STREAM	PREVIOUS PERMIT 7Q10	MIXING ZONE (CFS) (CHRONIC) [10 CSR 20-7.031(5)(A)5.A.4.B.(III)(a)]	ZONE OF INITIAL DILUTION (CFS) (ACUTE) [10 CSR 20-7.031(5)(A)4.B.(III)(b)]
#001, #002, #003, #004, #009	Mississippi River	107,694	26,924	2,347

Data were used from the previous permit.

PART III. RATIONALE AND DERIVATION OF PERMIT CONDITIONS

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:
As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.
✓ Not applicable; the facility is an existing facility.

ANTIBACKSLIDING:
Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(l)] require a reissued permit to be as stringent as the previous permit with some exceptions. Backsliding (a less stringent permit limitation) is only allowed under certain conditions.
✓ Limitations in this operating permit for the reissuance conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
- ✓ Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) which would have justified the application of a less stringent effluent limitation.
  - Five years of DMR data were available to support elevated effluent limitations, removal of monitoring, or removal of effluent limitations:
    - Through sampling, the facility has demonstrated there is no reasonable potential for whole effluent toxicity at all of the outfalls (#001 through #004) discharging to the Mississippi River because of the large dilution factor the river provides.
  - Outfalls #003, #004, and #005 previous had a base pH limit of 6.5. However, the Mississippi river provides sufficient assimilative capacity to offer 6.0 to this discharger at these outfalls.
- ✓ The Department determined technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).

- The permit writer has removed monthly average limitations for temperature at outfalls #001, #002, and #007. The facility must sample at least daily therefore providing a monthly average the same as the daily maximum is not appropriate. The permit writer feels this omission has no effect on the compliance the facility is subject to.
- The previous permit special conditions contained a specific set of prohibitions related to general criteria (GC) found in 10 CSR 20-7.031(4); however, there was no determination as to whether the discharges have reasonable potential to cause or contribute to excursion of those general water quality criteria in the previous permit. This permit assesses each general criteria as listed in the previous permit's special conditions. Federal regulations 40 CFR 122.44(d)(1)(iii) requires instances where reasonable potential (RP) to cause or contribute to an exceedance of a water quality standard exists, a numeric limitation must be included in the permit. Rather than conducting the appropriate RP determination, the previous permit simply placed the prohibitions in the permit. These conditions were removed from the permit. Appropriate reasonable potential determinations were conducted for each general criterion listed in 10 CSR 20-7.031(4)(A) through (I) and effluent limitations were placed in the permit for those general criteria where it was determined the discharge had reasonable potential to cause or contribute to excursions of the general criteria. Specific effluent limitations were not included for those general criteria where it was determined the discharges will not cause or contribute to excursions of general criteria. Removal of the prohibitions does not reduce the protections of the permit or allow for impairment of the receiving stream. The permit maintains sufficient effluent limitations, monitoring requirements and best management practices to protect water quality while maintaining permit conditions applicable to permittee disclosures and in accordance with 10 CSR 20-7.031(4) where no water contaminant by itself or in combination with other substances shall prevent the water of the state from meeting the following conditions:
  (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
    - ✓ For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates putrescent wastewater would be discharged from the facility.
    - ✓ For all outfalls, there is no RP for unsightly or harmful bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates unsightly or harmful bottom deposits would be discharged from the facility. Discharge of iron solids is prohibited by this permit.
  (B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses.
    - ✓ For outfalls #001, #002, #005, and #006 there is no RP for oil in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates oil will be present in sufficient amounts to impair beneficial uses.
    - ✓ For outfalls #003 and #004, there is RP for oil in sufficient amounts to be unsightly preventing full maintenance of beneficial uses; the data supplied by the permittee show discharges of oily wastewater has occurred during the last five years. While the discharge may or may not have produced a sheen, this permit contains effluent limits for oil and grease to protect for this general criteria.
    - ✓ For all outfalls, there is no RP for scum and floating debris in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates scum and floating debris will be present in sufficient amounts to impair beneficial uses.
  (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
    - ✓ For all outfalls, there is no RP for unsightly color or turbidity in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates unsightly color or turbidity will be present in sufficient amounts to impair beneficial uses.
    - ✓ For all outfalls, there is no RP for offensive odor in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates offensive odor will be present in sufficient amounts to impair beneficial uses.
  (D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
    - ✓ The permit writer considered specific toxic pollutants when writing this permit. Numeric effluent limitations are included for those pollutants could be discharged in toxic amounts. These effluent limitations are protective of human health, animals, and aquatic life.
  (E) There shall be no significant human health hazard from incidental contact with the water.
    - ✓ This criterion is very similar to (D) above. See Part IV, Effluent Limits Derivation below.
  (F) There shall be no acute toxicity to livestock or wildlife watering.
    - ✓ This criterion is very similar to (D) above. See Part IV, Effluent Limits Derivation below.
  (G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.
    - ✓ For outfalls #001 and #002, there is RP for physical changes impairing the natural biological community; this permit contains effluent limitations for temperature designed to protect for physical changes of the river.

- ✓ For all other outfalls, there is no RP for physical changes impairing the natural biological community because nothing disclosed by the permittee indicates this is occurring.
- ✓ It has been established any chemical changes are covered by the specific numeric effluent limitations established in the permit.
- ✓ For all outfalls, there is no RP for hydrologic changes impairing the natural biological community because nothing disclosed by the permittee indicates this is occurring.

(H) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

- ✓ There are no solid waste disposal activities or any operation which has reasonable potential to cause or contribute to the materials listed above being discharged through any outfall.

ANTIDEGRADATION REVIEW:
Process water discharges with new, altered, or expanding flows, the Department is to document, by means of antidegradation review, if the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the Department prior to establishing, altering, or expanding discharges. See http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm

- ✓ Applicable; the facility intends to discharge out of Sedimentation Basins, outfall #006, which contain contact stormwater from the utility waste landfill. Prior, this discharge went to outfall #003. Because the receiving streams are different, an antidegradation review is required.

This permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) which must include an alternative analysis (AA) of the BMPs. The SWPPP must be developed, implemented, updated, and maintained at the facility. Failure to implement and maintain the chosen alternative, is a permit violation. The AA is a structured evaluation of BMPs to determine which are reasonable and cost effective. Analysis should include practices designed to be 1) non-degrading, 2) less degrading, or 3) degrading water quality. The chosen BMP will be the most reasonable and cost effective while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The analysis must demonstrate why "no discharge" or "no exposure" are not feasible alternatives at the facility. Existing facilities with established SWPPPs and BMPs need not conduct an additional alternatives analysis unless new BMPs are established to address BMP failures or benchmark exceedances. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.015(9)(A)5 and 7.031(3). For stormwater discharges with new, altered, or expanding discharges, the stormwater BMP chosen for the facility, through the AA performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

- ✓ Applicable; the facility must review and maintain stormwater BMPs as appropriate.

BEST MANAGEMENT PRACTICES:
Minimum site-wide best management practices are established in this permit to assure all permittees are managing their sites equally to protect waters of the state from certain activities which could cause negative effects in receiving water bodies. While not all sites require a SWPPP because the SIC codes are specifically exempted in 40 CFR 122.26(b)(14), these best management practices are not specifically included for stormwater purposes. These practices are minimum requirements for all industrial sites to protect waters of the state. If the minimum best management practices are not followed, the facility may violate general criteria [10 CSR 20-7.031(4)]. Statutes are applicable to all permitted facilities in the state, therefore pollutants cannot be released unless in accordance with RSMo 644.011 and 644.016 (17).

CHANGES IN DISCHARGES OF TOXIC POLLUTANT:
This special condition reiterates the federal rules found in 40 CFR 122.44(f) and 122.42(a)(1). In these rules, the facility is required to report changes in amounts of toxic substances discharged. Toxic substances are defined in 40 CFR 122.2 as "…any pollutant listed as toxic under section 307(a)(1) or, in the case of "sludge use or disposal practices," any pollutant identified in regulations implementing section 405(d) of the CWA." Section 307 of the clean water act then refers to those parameters found in 40 CFR 401.15. The permittee should also consider any other toxic pollutant in the discharge as reportable under this condition.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

- ✓ Not applicable; the permittee/facility is not currently under Water Protection Program enforcement action.

COOLING WATER INTAKE STRUCTURES: CWA §316(B):
The Federal Water Pollution Control Act Amendments of 1972 require cooling water intake structures to reflect the best available technology for minimizing adverse environmental impact; these are listed as Permitted Features #101 and 102. Best technology

available must consider intake design, location, construction, and capacity. Permitted feature #101 is now designating the intake associated with unit 1; #102 is the intake for unit 2; the intakes are crosstied and therefore may be used for either unit. Currently, approximately 98% of intake water is used for direct condenser and service water cooling purposes, when the facility ceases sluicing ash, the percentage will increase to 100%. Certain processes at the facility use potable water from the St. Jude industrial park treatment facility and well water. These processes were not considered as part of the cooling water usage.

The New Madrid Power Plant is equipped with once-through condenser cooling systems. Water is drawn in through two off shore (about 50 feet from the right descending bank) intake structures located in the Mississippi River near the main channel. Under normal flow conditions, these structures are entirely under water. To minimize impingement and entrainment of fish and shellfish, the intake structures are designed to promote horizontal flow while minimizing vertical flow. Each structure has three sides open to horizontal flow and a concrete panel velocity cap. When river levels are low, floating, horizontal supplemental pumps are used to pump water into the intake structures. The physical location of the intakes are away from principal spawning areas, nursery/feeding areas, and high fish population areas. Being located off shore fish migratory pathways are not affected. This area of the river, near the main channel is characterized by swift current and shifting substratum which does not present a preferred fish habitat.

Horizontal intake configuration in the form of velocity caps are beneficial for two main reasons: (1) it eliminates vertical vortices and avoids withdrawal from the more productive aquatic habitat which usually is located closer to the surface of the water body; and (2) it creates a horizontal velocity pattern which gives juvenile and adult fish an indication for danger; most fish have receptors along the length of their bodies designed to sense horizontal movement; in nature such movement is associated with unusual conditions. This natural indication should provide fish in the area of the intake ample warning and opportunity to swim away from the intake. It is unclear if horizontal intake benefits shellfish or mussels.

An impingement study was conducted in 2005 along with a biological characterization study conducted in 2005/2006. The report was completed in 2007. The biological characterization study was to provide a description of the abundance and temporal and spatial characterization of the community potentially vulnerable to impingement. Historical studies conducted between 1975 and 1979 concluded the intake structures did not have significant adverse environmental impacts and the structures currently meet the requirements of CWA §316(b). Because the intake structure equipment and operation are essentially the same as the time of the original study, Associated Electric Cooperative, Inc. believes the conclusion of the 1970s study is still valid.

However, the rules regarding impingement and entrainment at 40 CFR 122.21(r) et seq. and 40 CFR 125 were updated in 2014 which requires the facility to provide additional information to the department. Primarily, the 2007 study was only for impingement and the new regulations also require entrainment studies to be performed.

Highlights of the 2007 impingement study are provided. Units 1 and 2 have separate intake structures located offshore. To minimize impingement and entrainment of fish and shellfish, the intake structures are designed to promote horizontal flow while minimizing vertical flow. Each structure has three sides open to horizontal flow and a concrete panel velocity cap. When river levels are low, floating, horizontal supplemental pumps are used to pump water into the intake structures. Water entering the intakes travel approximately 470 feet through 10-foot diameter inlet pipes to the traveling screens and the circulating water pump bays located on the river levee. Each unit has two circulating water pumps and two traveling screens. The traveling screens are 10 feet wide and have 3/8 inch mesh panels. Maximum through-screen velocity for the traveling screens is 2.4 foot per second. Fish and debris are washed off the screens and collected in debris baskets. Each traveling screen has a separate debris basket. The accumulated debris is periodically removed from the basket and disposed of at a landfill. Because no screen wash debris is returned to the river, impingement mortality at New Madrid is 100 percent.

The annual impingement mortality for Unit 1 was estimated to be 61,740 fish and 2,764 shellfish per year. Unit 2's annual impingement mortality was estimated to be 15,202 fish and 4,361 shellfish year. The total impingement mortality for New Madrid was 76,942 fish and 7,125 shellfish per year. A total of 199 and 336 shellfish were impinged at the Unit 1 and Unit 2 intakes, respectively. Those shellfish impinged included Asiatic clams, zebra mussels, crayfish, glass shrimp, snails, and native mussels. Asiatic clams and zebra mussels made up 90 percent of the shellfish catch at Unit 1 and 63.9 percent of the catch at Unit 2. The estimated yearly impingement for shellfish impingement was 2,764 shellfish at Unit 1 and 4,361 shellfish at Unit 2.

The Unit 1 intake is downstream of the Unit 2 intake. Previous impingement studies conducted at New Madrid from November 1975 through November 1976 and January 1978 through January 1979 also linked lower river flows to higher impingement rates. The 1978-79 impingement rate was much less than the 1975-76 study and coincided with higher average annual flows during the 1978-79 study than the 1975-76 study. The inverse relationship between annual flow and annual impingement, however, breaks down when the 2005 data are considered. The average annual flow in 2005 was between the two previous studies; however, estimated annual impingement rate was considerably greater than the estimated impingement for the 1975-76 study. The relatively high impingement rates observed in 2005 could be a function of increases in fish abundance possibly occurring in the Mississippi River since implementation of the Clean Water Act, resulting in improvement of river water quality. The highest months of impingement occurred in October and December. The impingement rates for the year for Unit 1 was 0.408 fish per million gallons, and for Unit 2, 0.104 fish per million gallons.

Impingement rates were relatively low for the first half of the study when river flows were relatively high. The converse was true in the latter half of the study. The potential causal relationship between river flow and impingement rate, however, is confounded by the occurrence of declining water temperatures at the same time as the low flows. Because a fish's ability to swim away from an intake is proportional to water temperature, lower water temperatures should equate to higher impingement rates. At New Madrid, both water temperature and river flow likely impact impingement. In January and February, water temperatures were low, which should have resulted in relatively high impingement. However, impingement was low while river flow was high. In August through December, river flow was fairly consistently low but impingement rates were highly variable and spiked in apparent response to rapid declines in water temperature.

The permit writer believes the special conditions implemented in this permit for the cooling water intake structures conform to the requirements emplaced by the Environmental Protection Agency upon the Department at 40 CFR 125.98. This permit is not currently requiring a Record of Visual or Remote Inspections of the intakes conducted weekly in accordance with 40 CFR 125.96(e) since no impingement technology has been installed yet.

DOMESTIC WASTEWATER, SLUDGE, AND BIOSOLIDS:
Domestic wastewater is defined as wastewater (i.e., human sewage) originating primarily from the sanitary conveyances of bathrooms and kitchens. Domestic wastewater excludes stormwater, animal waste, process waste, and other similar waste.

- ✓ Not applicable; this facility discharges domestic wastewater from the main plant to an off-site permitted wastewater treatment facility (POTW), the St. Jude Industrial Park.
- ✓ Not applicable; this facility discharges domestic wastewater from the precipitator electrical building subsurface with flows of 3,000 gallons per day or less as calculated in accordance with 19 CSR 20-3.060(1)(E) and tables 2A and 2B. The domestic wastewater system is jurisdiction of the Missouri Department of Health and Senior Services or Local Public Health Agency. This permit does not authorize any non-domestic wastewater for introduction into the sub-surface system.

Sewage sludge is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Biosolids are solid materials resulting from domestic wastewater treatment meeting federal and state criteria for productive use (i.e. fertilizer) and after having pathogens removed.
Additional information: http://extension.missouri.edu/main/DisplayCategory.aspx?C=74 (WQ422 through WQ449).

EFFLUENT LIMITATIONS:
Effluent limitations derived and established for this permit are based on current operations of the facility and applied per 10 CSR 20-7.015(9)(A). Any flow through the outfall is considered a discharge and must be sampled and reported as provided in the permit. Future permit action due to facility modification may contain new operating permit terms and conditions which supersede the terms and conditions, including effluent limitations, of this operating permit. Daily maximums and monthly averages are required per 40 CFR 122.45(d)(1) for continuous discharges (not from a POTW).

EFFLUENT LIMITATION GUIDELINE:
Effluent Limitation Guidelines, or ELGs, are found at 40 CFR 400-499. These are limitations established by the EPA based on the SIC code and the type of work a facility is conducting. Most ELGs are for process wastewater and some address stormwater. All are technology based limitations which must be met by the applicable facility at all times.

- ✓ The facility has an associated Effluent Limit Guideline (ELG) at 40 CFR 423 applicable to the wastewater and certain stormwater discharges at this site, and is applied under 40 CFR 125.3(a). Should Reasonable Potential be established for any particular parameter, and water-quality derived effluent limits are more protective of the receiving water's quality, the WQS will be used as the limiting factor in accordance with 40 CFR 122.44(d) and 10 CSR 20-7.015(9)(A). See Part IV: EFFLUENT LIMITS DETERMINATION.

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:
The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online.

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. A request must be made for each facility. If more than one facility is owned

or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is not transferable.

The Department must review and notify the facility within 120 calendar days of receipt if the waiver request has been approved or rejected [40 CFR 124.27(a)]. During the Department review period as well as after a waiver is granted, the facility must continue submitting a hard-copy of any reports required by their permit. The Department will enter data submitted in hard-copy from those facilities allowed to do so and electronically submit the data to the EPA on behalf of the facility.

To assist the facility in entering data into the eDMR system, the permit describes limit sets in each table in Part A of the permit. The data entry personnel should use these identifiers to assure data entry is being completed appropriately.

✓ The permittee/facility is currently using the eDMR data reporting system.

GENERAL CRITERIA CONSIDERATIONS:

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into permits for pollutants determined to cause, have reasonable potential to cause, or to contribute to, an excursion above any water quality standard, including narrative water quality criteria. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether discharges have reasonable potential to cause, or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). In instances where reasonable potential exists, the permit includes limitations within the permit to address the reasonable potential. In discharges where reasonable potential does not exist, the permit may include monitoring to later determine the discharge's potential to impact the narrative criteria. Additionally, §644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit state it shall be unlawful for any person to cause or allow any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule, or regulation promulgated by the commission.

✓ Applicable; this permit contains effluent limitations for oil and grease; the permit writer has determined this facility has reasonable potential to discharge a sheen or oil per 10 CSR 20-7.031(4)(B) therefore limits were applied. See Part IV.

GROUNDWATER MONITORING AND COAL COMBUSTION RESIDUALS (CCR):

The New Madrid Power Plant has three ash storage areas. (1) the original ash pond served by outfall #003, (2) a boiler slag dewatering pond served by outfall #004; and (3) a lined and active coal combustion residual landfill constructed under 10 CSR 80-11; the latter (no. 3) is not being considered under this permit and is regulated by the Waste Management Program.

New Madrid currently has two ash pond areas; pond 3, and pond 4. The Lined Ash Pond (part of outfall/pond #003) is currently being closed and will be completely closed by January 2021. Pond 4 no longer receives sluiced ash and only receives stormwater. Pond 3 is the main pond used for plant operations. As part of the closure of pond 3, the facility will be constructing a new stormwater pond.

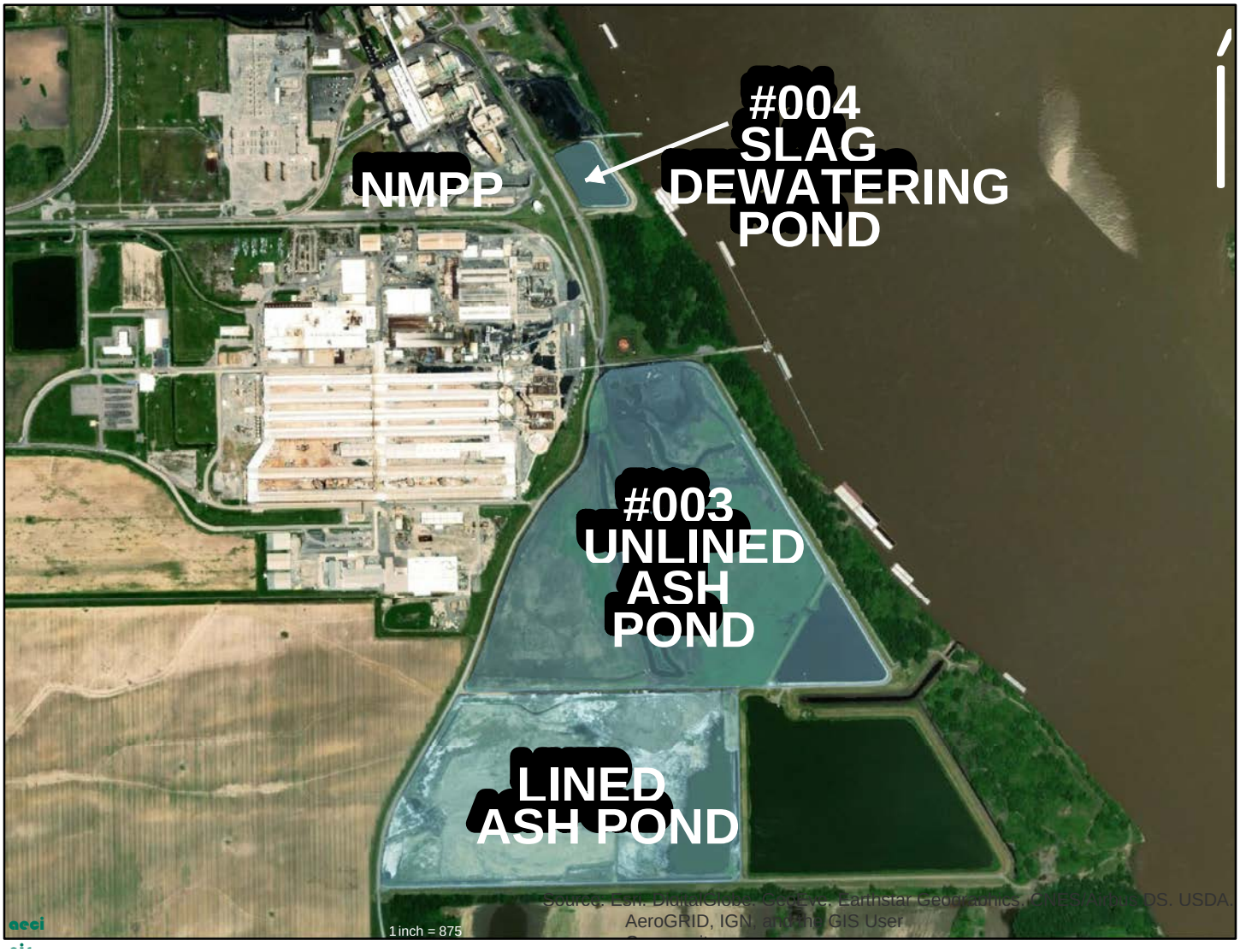
All ponds are on the river-side of the Mississippi River levee system. Historical information shows the ponds associated with outfall #003 have not been inundated with floodwaters; however, in May 2011, the pond serving outfall #004 was completely under water.

The facility supplied much of the following information via their website and within the application for renewal. The Waste Management Program, not the WPP, has primacy associated with the rules found at 40 CFR 257. However, the WPP had determined this online information to be appropriate data to consider in permitting; the groundwater beneath these units are waters of the state and the ponds have potential to discharge to groundwater, which is a water of the state. The WPP has established groundwater protections for the groundwater in the state and data collected will be used to assure the groundwater remains available for use as required by 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6). The WPP has developed a strategy, applied on a site-specific basis, to monitor and classify each of these areas listed below. See special conditions.

<u>Outfall #003:</u>

The original ash pond at outfall #003 was constructed in 1972, contains no liner, and is approximately 110 acres. The pond contains all fly ash generated from initial plant start-up in 1972 until 1994. There is likely an accumulation of some boiler slag; however, most slag was sold from the plant. The pond is actively used by a third party to wash and size boiler slag for off-site use. The majority of boiler slag is sluiced to this pond where it is recovered by the third party and processed. The third party has contracted with AECI for purchase of all boiler slag. The slag is transferred off site by barge and a portion of slag reject is hauled off-site to be used for snow and ice control on roadways. The portion of reject boiler slag not hauled off-site for use on roadways is transported to the utility waste landfill for disposal. This pond is also used to treat other wastewaters, e.g. coal pile runoff (until a new coal pile runoff outfall is built).

The flood control plan for pond 3 indicates all four sides of the impoundment have embankments above natural grade and no overland flow discharges into the unit. The approximated bottom elevation of the ash ponds are 284 feet above mean sea level (AMSL). The top of the berms peak at 308 feet AMSL. Directly below the ponds is a thin layer of silty clay; below the silty clay is sand. In the 2014 geohydrological assessment, the highest groundwater elevation recorded was 284 AMSL in 4 piezometers in 2009. Special conditions address this apparent infiltration into the waste mass as only a portion of pond 3 is lined.



The boiler slag dewatering pond was constructed in 1984 and is approximately 10 acres in size with a compacted low permeability soil liner. The pond is used primarily to store boiler slag; on occasion, boiler slag is sluiced to the pond for dewatering for off-site sale. There is no accumulation of boiler slag below the water level in this pond. Sluice pipes were cut to this pond in the Summer of 2019 and the area is mainly used to stage boiler slag before transportation off-site.

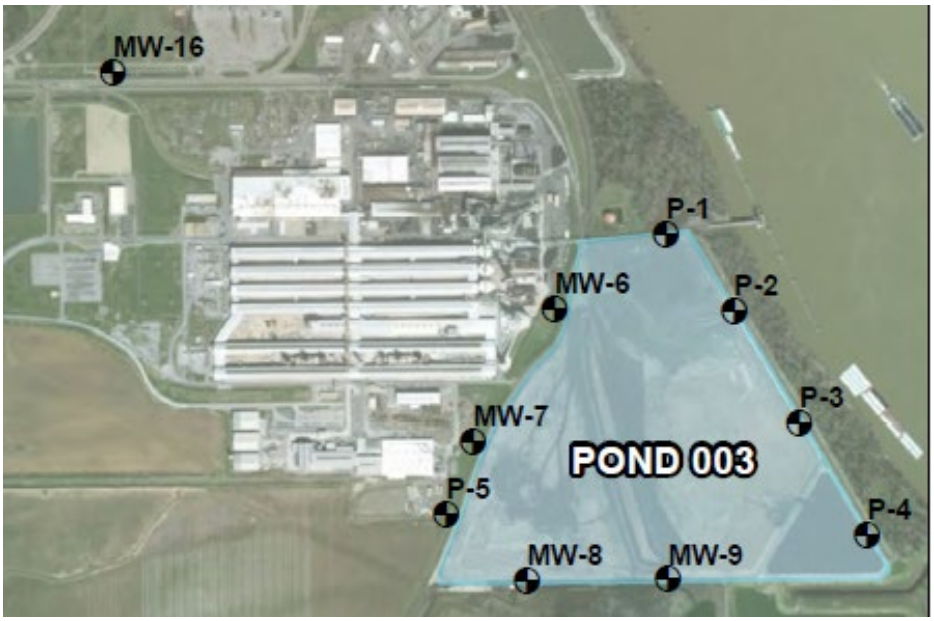
The lined fly ash pond is located adjacent the original ash pond, is approximately 78 acres in size, and is lined with a compacted low permeability soil / HDPE composite liner. This pond also discharges through outfall #003. During the coal conversion in 1994, the wet fly ash sluice system was discontinued and a dry fly ash handling system was installed. Fly ash was transported to this pond via enclosed tank trailers, and unloaded by air pressurizing the tank car and transferring the dry fly ash from the trucks by water to the pond. Water present in the pond was recycled for this transfer system. The lined fly ash pond no longer receives any fly ash from the plant. The pond is being prepared for closure. An overflow from this pond discharges to the adjacent original ash pond. The pond contains all fly ash generated between 1994 and 2008 In 2008, a utility waste landfill was constructed where all fly ash is now disposed. Dry fly ash is mixed with a moderate amount of water in a paddle mixer to suppress dust then transferred to the landfill in dump trucks.

October 2016 Closure Plan for Active Pond 3: The proposed final cover system will consist of a minimum 18-inch thick soil infiltration layer to minimize the infiltration of liquids through the CCR unit. The infiltration layer will have a permeability less than or equal to any natural subsoils present, or no greater than 1 x 10-5 cm/s, whichever is less. An equivalent alternative may also be chosen in the future. Erosion of the final cover system will be minimized by the placement of a minimum 6-inch thick soil erosion layer, capable of supporting native plant growth. It is anticipated soils will be imported from adjacent borrow areas proximate to the CCR impoundment.

April 2018 Intent to Close Inactive Lined Ash Pond: The facility has initiated the closure of this pond and expects to be complete by January 2021. The final cover system is proposed to be designed and constructed to meet the USEPA's CCR Rule requirement of

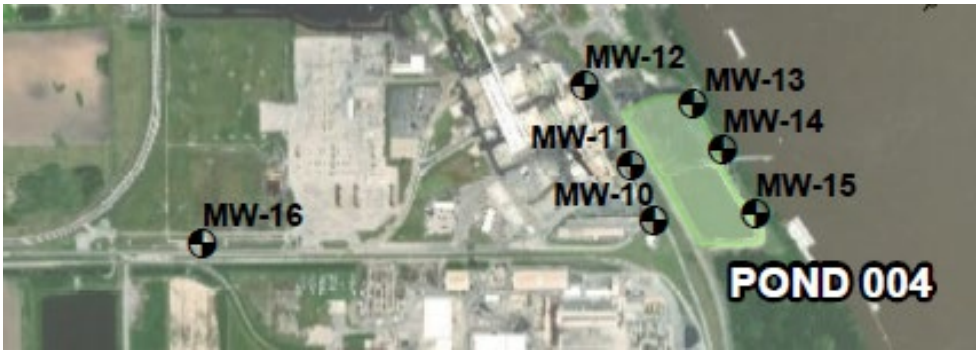
§257.102(d)(3). The proposed final cover system will have a permeability less than or equal to any bottom liner system or any natural subsoils present, or no greater than 1 x 10^{5} cm/s, whichever is less, and an 18-inch infiltration layer to minimize the infiltration of liquids through the CCR unit. An equivalent alternative may also be chosen. Erosion of the final cover system will be minimized by the placement of a minimum 6-inch erosion layer, capable of supporting native plant growth. It is anticipated soils will be imported from adjacent borrow areas proximate to the unit and plant.

Data supplied for pond 3 shows some exceedances of the Missouri GW WQS for boron and sulfate in many of the monitoring wells; the permit writer knows these to be indicators of ash contamination in the groundwater from review of documents produced by the Electric Power Research Institute (EPRI).



Outfall #004:
October 2016 Closure Plan for Active Pond 004: this is an active pond in accordance with 40 CFR 257. Results of the detection monitoring statistical analyses completed in January 2018 identified statistically significant increased (SSI) concentration of Appendix III constituents in downgradient monitoring wells relative to concentrations observed in upgradient monitoring wells. (wells MW-10, MW-11, and MW-12: boron and sulfate; wells MW-13 and MW-14: boron and chloride; well MW-15: boron, chloride, and sulfate) No alternative source was identified for the SSI constituents (the alternative source determination was not completed). Accordingly, the groundwater monitoring program transitioned to and is currently implementing an assessment monitoring program.

Data supplied for pond 4 showed only one parameter (sulfate) exceed groundwater standards twice (in January and February of 2017) at one monitoring well (MW-10) since data collection began. However, the entirety of this pond was inundated with floodwaters in May 2011. Discharge of slugs of pollutants are not authorized under this permit; see: https://dnr.mo.gov/pubs/pub2753.htm, *Flooding Impacts On Missouri's Water Quality*. As the facility has knowledge the basin can flood, all closure options should be carefully considered.



CCR Determinations:
Groundwater is a water of the state according to the Missouri Clean Water Law (RSMo 644.016 (27)) and is subject to regulations at 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6) and must be protected accordingly. This operating permit contains special conditions to address concerns regarding ash (all coal combustion residuals) ponds at this facility and their potential to impact groundwater and would be considered a release under 10 CSR 20-2.010(67); therefore, the basins are considered water contaminant sources per RSMo 644.016 (25). Missouri Water Quality Standard 10 CSR 20-7.031(6)(A) states, "*Water contaminants shall not cause or contribute to exceedances of Table A, groundwater limits in aquifers and caves...*" The established special condition will allow the department to (1) determine if groundwater is being impacted from either the lined or unlined coal ash impoundments, and (2) establish controls, limits, management strategies, and/or groundwater cleanup criteria.

This facility is conducting groundwater monitoring to determine if ash impoundments are impacting the groundwater negatively at this site. The two areas the facility is sampling under the Water Protection Program (WPP) jurisdiction are ponds 3 and 4 (outfalls #003, and #004). The Waste Management Program has jurisdiction over the landfill and the associated groundwater monitoring for the area. AECI has begun groundwater modeling and corrective measures assessment and is currently selecting closure remedies.

Using documents the facility is required to upload as part of the requirements under 40 CFR 257, the permit writer has made several determinations regarding the groundwater at these two areas. As the facility has not yet chosen a remedy for the ponds, this permit requires groundwater monitoring and reporting; the facility is not required to establish a separate monitoring well network for compliance with this permit.

In the past, at other facilities, if the facility closes an ash pond by complete waste removal, the Program has determined continued monitoring for groundwater constituents generally to be unnecessary. Continued monitoring would only serve to monitor natural attenuation, which often addresses any impacted water left in place. The data collected would likely not provide useful groundwater data that changes the status of, or action required at, the site. With in-place closure of ash ponds, if continuing WQS groundwater exceedances were noted, the Program would require additional actions. If facilities do not pursue closure by removal, an area exhibiting continued Missouri groundwater standard exceedances may be required to undergo further demonstrations to the state, such as a Risk-Based Assessment to show the waste mass is not exposing pollutants to any targets. This assessment is quite involved and results in site specific requirements being implemented; please see additional information at https://dnr.mo.gov/pubs/pub2187.htm , https://dnr.mo.gov/env/hwp/mrbca/docs/mrbcasection1.pdf and https://dnr.mo.gov/env/hwp/mrbca/docs/mrbca-sections6-06.pdf

Additionally, the EPA has not considered groundwater as a requirement under the Clean Water Act (CWA). However, Missouri has primacy to administer the NPDES program. Groundwater is a water of the state, and when the facility has no other NPDES requirements, the state may issue a state-only MOPDES permit; but because this facility is subject to NPDES requirements, Missouri has included the groundwater conditions into the federal permit instead of issuing a separate state-only permit. State statutes require permittees to pay only one fee per program per site in accordance with RSMo 644.051.10; therefore, the state issues only one water operating permit to each entity.

Upon closure the Department will continue to evaluate groundwater monitoring data. This data will be used at subsequent permit renewals to determine if the material is causing or contributing to an excursion of the GW criteria and or if there is an impact of the beneficial use of the groundwater as set forth in 10 CSR 20-7.031. If reasonable potential to exceed the criteria exists, the Department will determine if permit limits are necessary to protect the use of the groundwater. If limits are established the Department will also determine an appropriate schedule of compliance for the limits. During this schedule of compliance, the facility has several mitigation options that include removing the material, establishing a barrier to prohibit movement of the pollutants through groundwater, seeking risk based alternative limits pursuant to 10 CSR 20-7.015, or other mitigation alternatives that achieve compliance with the groundwater criteria and protect the groundwater use by other groundwater users.

MAJOR WATER USER:
Any surface or groundwater user with a water source and the equipment necessary to withdraw or divert 100,000 gallons (or 70 gallons per minute) or more per day combined from all sources from any stream, river, lake, well, spring, or other water source is considered a major water user in Missouri. All major water users are required by law to register water use annually (Missouri Revised Statues Chapter 256.400 Geology, Water Resources and Geodetic Survey Section). https://dnr.mo.gov/pubs/pub2236.htm
✓ Applicable; this facility is a major water user and is registered with the state.

NO-DISCHARGE LAND APPLICATION:
Land application of wastewater or sludge shall comply with the all applicable no-discharge requirements listed in 10 CSR 20-6.015 and all facility operations and maintenance requirements listed in 10 CSR 20-8.020(15). These requirements ensure appropriate operation of the no-discharge land application systems and prevent unauthorized and illicit discharges to waters of the state. Land applications by a contract hauler on fields the permittee has a spreading agreement on are not required to be in this permit. A spreading agreement does not constitute the field being rented or leased by the permittee as they do not have any control over management of the field.
✓ Not applicable; this permit does not authorize operation of a no-discharge land application system to treat wastewater or sludge.

NUTRIENTS IN WASTEWATER:
The EPA has developed a model to better identify facilities operating in industries (classified by SIC code) likely to discharge nutrients, and estimate the amount of nutrients discharged from these facilities as a whole. EPA focused on nutrient discharges due to the significant environmental impacts on the nation's water resources (e.g., Gulf of Mexico and Chesapeake Bay hypoxic zones). EPA created the "Nutrient Model (Hypoxia Task Force Search)" to provide access to aggregated nitrogen and aggregated phosphorus loads (including modeled loads) for facilities. https://echo.epa.gov/help/loading-tool/hypoxia-task-force-search-help/about-the-nutrient-model Permit writers are directed to include monitoring for nutrients using this information if site specific data weren't supplied on the application for renewal.

- ✓ Applicable. Per the EPA report on nutrients in wastewater for the Mississippi River basin, the EPA has evaluated sampling data from multiple states and determined this facility's SIC code is associated with discharging both nitrogen and phosphorus therefore the permit writer has determined the below specified wastewater at this site will contain nutrients. https://www.regulations.gov/document?D=EPA-HQ-OW-2009-0819-5787
- ✓ Because of the EPA report, this meets the onus of a discharger typically discharging nutrients per 10 CSR 20-7.015(9)(D)8. Monitoring requirements are being established at outfalls #003, #004, and #009 in accordance with 10 CSR 20-7.015(9)(D)8.B. as all of these outfalls have a design flow above 1 MGD.
- ✓ The permit writer has determined these sampling requirements are only applicable to wastewater discharges, not stormwater.
- ✓ Outfalls #001 and #002 are single pass cooling water and the facility is not adding any nutrients to these discharges therefore monitoring would falsely increase the total loading of nutrients discharged from industrial facilities in this state.
- ✓ During the preview period, the facility described the content of the nutrients in the wastewater as from the influent of the river. However, while single pass cooling water was discounted, processes occurring at outfalls #003, #004, and #009 could add nutrients. For outfalls #003 and #004, the facility is continuing to sluice ash until January 2024 and noted the wastewater discharged is likely gaining nutrients from the intake; however, the monitoring requirement will remain to compare pre and post sluicing ash nutrient concentrations.
- ✓ Application sampling data were supplied below. Outfall #009 is new therefore no data exists.

Outfall	#003	#004
Ammonia	<0.5 mg/L	<0.5 mg/L
Nitrogen	<1.5 mg/L	<1.5 mg/L
Nitrate + Nitrite	0.84 mg/L	0.42 mg/L
Phosphorus	marked believed absent; not tested	marked believed absent; not tested

- ✓ Analytical data show nitrogen is present in the form of nitrate plus nitrite therefore the permit writer has determined the facility must test for nitrogenous compounds.
- ✓ EPA information indicates phosphorus is present, and because the facility has not tested for phosphorus, monitoring is implemented.

OIL/WATER SEPARATORS:
Oil water separator (OWS) tank systems are frequently found at industrial sites where process water and stormwater may contain oils and greases, oily wastewaters, or other immiscible liquids requiring separation. Food industry discharges typically require pretreatment prior to discharge to municipally owned treatment works. Per 10 CSR 26-2.010(2)(B), all oil water separator tanks must be operated according to manufacturer's specifications and authorized in NPDES permits or may be regulated as a petroleum tank.

- ✓ Applicable; the OWSs, as described in the FACILITY DESCRIPTION, is authorized under this permit. Sludge generated by OWS is subject to Special Conditions. See SLUDGE – INDUSTRIAL below.

REASONABLE POTENTIAL (RP):
Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants which are (or may be) discharged at a level causing or have the reasonable potential to cause (or contribute to) an in-stream excursion above narrative or numeric water quality standards. Per 10 CSR 20-7.031(4), general criteria shall be applicable to all waters of the state at all times; however, acute toxicity criteria may be exceeded by permit in zones of initial dilution, and chronic toxicity criteria may be exceeded by permit in mixing zones. If the permit writer determines any given pollutant has the reasonable potential to cause or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for the pollutant per 40 CFR Part 122.44(d)(1)(iii) and the most stringent limits per 10 CSR 20-7.031(9)(A). Permit writers may use mathematical reasonable potential analysis (RPA) using the Technical Support Document for Water Quality Based Toxics Control (TSD) methods (EPA/505/2-90-001) as found in Section 3.3.2, or may also use reasonable potential determinations (RPD) as provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD.

- ✓ Applicable; an RPA was conducted on appropriate parameters and was conducted as per (TSD Section 3.3.2). A more detailed version including calculations of this RPA is available upon request. See Wasteload Allocations (WLA) for Limits in this section.

Parameter:	CMC Acute	CCC Chronic	Listing	Daily Max	Monthly Average	n#	CV	n Max	MF	RWC Acute	RWC Chronic	RP
Aluminum, Total Recoverable	750	n/a	AQL	8250	4112	1	0.6	1100	13.19433	1319.43	24.979	Yes
Zinc, Total Recoverable	180.69	179.22	AQL	1988	990	1	0.6	104	13.19433	124.746	2.3616	No

Units are (µg/L) unless otherwise noted.
n/a Not Applicable

n	number of samples; if the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent.
CV	Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the mean of the same sample set.
CCC	continuous chronic concentration
CMC	continuous maximum concentration
RWC	Receiving Water Concentration: concentration of a toxicant or the parameter in the receiving water after mixing (if applicable)
MF	Multiplying Factor; 99% confidence level and 99% probability basis
RP	Reasonable Potential: an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

- ✓ Applicable; the permit writer conducted an RPD on applicable parameters within the permit. See Part IV: Effluent Limits Determinations below.
- ✓ This permit establishes permit limits and benchmarks for stormwater. The Department has determined stormwater is not a continuous discharge and is therefore not necessarily dependent on mathematical RPAs. However, the permit writer completed an RPD, a reasonable potential determination, using best professional judgment for all of the appropriate parameters in this permit. An RPD consists of reviewing application data and/or discharge monitoring data for the last five years and comparing those data to narrative or numeric water quality criteria.
- ✓ Permit writers use the Department's permit writer's manual (http://dnr.mo.gov/env/wpp/permits/manual/permit-manual.htm), the EPA's permit writer's manual (https://www.epa.gov/npdes/npdes-permit-writers-manual), program policies, and best professional judgment. For each parameter in each permit, the permit writer carefully considers all applicable information regarding: technology based effluent limitations, effluent limitation guidelines, water quality standards, stream flows and uses, and all applicable site specific information and data gathered by the permittee through discharge monitoring reports and renewal (or new) application sampling. Best professional judgment is based on the experience of the permit writer, cohorts in the Department and resources at the EPA, research, and maintaining continuity of permits if necessary. For stormwater permits, the permit writer is required per 10 CSR 6.200(6)(B)2 to consider: A. application and other information supplied by the permittee; B. effluent guidelines; C. best professional judgment of the permit writer; D. water quality; and E. BMPs. Part IV provides specific decisions related to this permit.
- ✓ The permit writer reviewed application materials, DMR data, past inspections, and other site specific factors to evaluate general and narrative water quality reasonable potential for this facility. Per the permit writer's best professional judgment, based on available data and full and accurate disclosure on application materials, this facility demonstrates reasonable potential for excursions from the general or narrative water quality criteria. See Part IV: Effluent Limit Determinations for specific parameter RP.

SAMPLING FREQUENCY JUSTIFICATION:
Sampling and reporting frequency was generally retained from previous permit. 40 CFR 122.45(d)(1) indicates all continuous discharges shall be permitted with daily maximum and monthly average limits. Minimum sampling frequency for all parameters is annually per 40 CFR 122.44(i)(2).

Sampling frequency for stormwater-only outfalls is typically quarterly even though BMP inspection occurs monthly. The facility may sample more frequently if additional data is required to determine if best management operations and technology are performing as expected.

SAMPLING TYPE JUSTIFICATION:
Sampling type was continued from the previous permit for outfalls #001, #002, and #007; composite sampling for outfall #003 and #004 was changed from composite to grab because the nature of the discharge. The sampling types are representative of the discharges, and are protective of water quality. Discharges with altering effluent should have composite sampling; discharges with uniform effluent can have grab samples. Grab samples are usually appropriate for stormwater. Parameters which must have grab sampling are: pH, ammonia, *E. coli*, total residual chlorine, free available chlorine, hexavalent chromium, dissolved oxygen, total phosphorus, volatile organic compounds, and others.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, effluent limits, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. SOCs are allowed under 40 CFR 122.47 providing certain conditions are met. A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study associated with development of a site specific criterion. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

In order to provide guidance in developing SOCs, and to attain a greater level of consistency, the Department issued a policy on development of SOCs on October 25, 2012. The policy provides guidance to permit writers on standard time frames for schedules for common activities, and guidance on factors to modify the length of the schedule.

- ✓ Not applicable; this permit does not contain a numeric water quality SOC.
- ✓ However, on January 1, 2024, the facility is required to cease sluicing ash in accordance with ELG limitations. For the interim, a net limitation of TSS is allowed for outfalls #003 and #004. After the date, the net limitations will be removed and the facility will be required to meet the TSS limit without netting the intake.
- ✓ See any additional reports enumerated in the special conditions.

SPILLS, OVERFLOWS, AND OTHER UNAUTHORIZED DISCHARGE REPORTING:
Per 260.505 RSMo, any emergency involving a hazardous substance must be reported to the Department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The Department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I. http://dnr.mo.gov/env/esp/spillbill.htm

Any other spills, overflows, or unauthorized discharges reaching waters of the state must be reported to the regional office during normal business hours, or after normal business hours, to the Department's 24 hour Environmental Emergency Response spill line at 573-634-2436.

SLUDGE – INDUSTRIAL:
Industrial sludge is solid, semi-solid, or liquid residue generated during the treatment of industrial process or non-process wastewater in a treatment works; including but not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment process; scum and solids filtered from water supplies and backwashed; and any material derived from industrial sludge.

- ✓ Applicable; boiler slag is washed at the basin serving outfall #003 and then residues from slag washing, plant ditch cleanout, and coal residuals are disposed in the utility waste landfill. Fly ash is normally disposed in the landfill except during downtime when it is disposed in the ash pond. The permitted management strategy must be followed, see permit under FACILITY DESCRIPTION. If the permitted management strategy cannot be followed, the permittee must obtain a permit modification.

STANDARD CONDITIONS:
The standard conditions Part I attached to this permit incorporate all sections of 40 CFR 122.41(a) through (n) by reference as required by law. These conditions, in addition to the conditions enumerated within the standard conditions should be reviewed by the permittee to ascertain compliance with this permit, state regulations, state statues, federal regulations, and the Clean Water Act. Standard Conditions Part III, if attached to this permit, incorporate all requirements dealing with domestic sludge.

STORMWATER PERMITTING: LIMITATIONS AND BENCHMARKS:
Because of the fleeting nature of stormwater discharges, the Department, under the direction of EPA guidance, has determined monthly averages are capricious measures of stormwater discharges. The *Technical Support Document for Water Quality Based Toxics Control* (EPA/505/2-90-001; 1991) Section 3.1 indicates most procedures within the document apply only to water quality based approaches, not end-of-pipe technology-based controls. Hence, stormwater-only outfalls will generally only contain a maximum daily limit (MDL), benchmark, or monitoring requirement as dictated by site specific conditions, the BMPs in place, past performance of the facility, and the receiving water's current quality.

Sufficient rainfall to cause a discharge for one hour or more from a facility would not necessarily cause significant flow in a receiving stream. Acute Water Quality Standards (WQSs) are based on one hour of exposure, and must be protected at all times. Therefore, industrial stormwater facilities with toxic contaminants present in the stormwater may have the potential to cause a violation of acute WQSs if toxic contaminants occur in sufficient amounts. In this instance, the permit writer may apply daily maximum limitations.

Conversely, it is unlikely for rainfall to cause a discharge for four continuous days from a facility; if this does occur however, the receiving stream will also likely sustain a significant amount of flow providing dilution. Most chronic WQSs are based on a four-day exposure with some exceptions. Under this scenario, most industrial stormwater facilities have limited potential to cause a violation of chronic water quality standards in the receiving stream.

A standard mass-balance equation cannot be calculated for stormwater because stormwater flow and flow in the receiving stream cannot be determined for conditions on any given day or storm event. The amount of stormwater discharged from the facility will vary based on current and previous rainfall, soil saturation, humidity, detention time, BMPs, surface permeability, etc. Flow in the receiving stream will vary based on climatic conditions, size of watershed, area of surfaces with reduced permeability (houses, parking lots, and the like) in the watershed, hydrogeology, topography, etc. Decreased permeability may increase the stream flow dramatically over a short period of time (flash).

Numeric benchmark values are based on site specific requirements taking in to account a number of factors but cannot be applied to any process water discharges. First, the technology in place at the site to control pollutant discharges in stormwater is evaluated. The permit writer also evaluates other similar permits for similar activities. A review of the guidance forming the basis of Environmental Protection Agency's (EPA's) *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (MSGP) may also occur. Because precipitation events are sudden and momentary, benchmarks based on state or federal standards or recommendations use the Criteria Maximum Concentration (CMC) value, or acute standard may also be used. The CMC is the estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The CMC for aquatic life is intended to be protective of the vast majority of the aquatic communities in the United States. If a facility has not disclosed BMPs applicable to the pollutants for the site, the permittee may not be eligible for benchmarks.

40 CFR 122.44(b)(1) requires the permit implement the most stringent limitations for each discharge, including industrially exposed stormwater; and 40 CFR 122.44(d)(1)(i) and (iii) requires the permit to include water-quality based effluent limitations where reasonable potential has been found. However, because of the non-continuous nature of stormwater discharges, staff are unable to perform statistical Reasonable Potential Analysis (RPA) under most stormwater discharge scenarios. Reasonable potential determinations (RPDs; see REASONABLE POTENTIAL above) using best professional judgment are performed.

Benchmarks require the facility to monitor, and if necessary, replace and update stormwater control measures. Benchmark concentrations are not effluent limitations. A benchmark exceedance, therefore, is not a permit violation; however, failure to take corrective action is a violation of the permit. Benchmark monitoring data is used to determine the overall effectiveness of control measures and to assist the permittee in knowing when additional corrective actions may be necessary to comply with the conditions of the permit.

BMP inspections typically occur more frequently than sampling. Sampling frequencies are based on the facility's ability to comply with the benchmarks and the requirements of the permit. Inspections should occur after large rain events and any other time an issue is noted; sampling after a benchmark exceedance may need to occur to show the corrective active taken was meaningful.

When a permitted feature or outfall consists of only stormwater, a benchmark may be implemented at the discretion of the permit writer, if there is no RP for water quality excursions.

- ✓ Applicable, this facility has stormwater-only outfalls where benchmarks or limitations were deemed appropriate contaminant measures.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k), Best Management Practices (BMPs) must be used to control or abate the discharge of pollutants when: 1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; 3) Numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002) published by the EPA in 2015 https://www.epa.gov/sites/production/files/2015-11/documents/swppp_guide_industrial_2015.pdf, BMPs are measures or practices used to reduce the amount of pollution entering waters of the state from a permitted facility. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to 1) identify sources of pollution or contamination, and 2) select and carry out actions which prevent or control the pollution of storm water discharges. Additional information can be found in *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-006; September 1992).

A SWPPP must be prepared by the permittee if the SIC code is found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2). A SWPPP may be required of other facilities where stormwater has been identified as necessitating better management. The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-

evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. For further guidance, consult the antidegradation implementation procedure (http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf).

Regarding the antidegradation implementation procedure, alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs which are reasonable and cost effective. The AA evaluation should include practices designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of AIP defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The AA evaluation must demonstrate why "no discharge" or "no exposure" is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure* (AIP), Section II.B.

If parameter-specific numeric benchmark exceedances continue to occur and the permittee feels there are no practicable or cost-effective BMPs which will sufficiently reduce a pollutant concentration in the discharge to the benchmark values established in the permit, the permittee can submit a request to re-evaluate the benchmark values. This request needs to include 1) a detailed explanation of why the facility is unable to comply with the permit conditions and unable to establish BMPs to achieve the benchmark values; 2) financial data of the company and documentation of cost associated with BMPs for review and 3) the SWPPP, which should contain adequate documentation of BMPs employed, failed BMPs, corrective actions, and all other required information. This will allow the Department to conduct a cost analysis on control measures and actions taken by the facility to determine cost-effectiveness of BMPs. The request shall be submitted in the form of an operating permit modification, which includes an appropriate fee; the application is found at: https://dnr.mo.gov/forms/#WaterPollution

✓ Applicable; a SWPPP shall be developed, implemented, and updated accordingly for this facility.

SUFFICIENTLY SENSITIVE ANALYTICAL METHODS:

Please review Standard Conditions Part 1, section A, number 4. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 and/or 40 CFR 136 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method quantifies the pollutant below the level of the applicable water quality criterion or; 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015 and or 40 CFR 136. These methods are also required for parameters listed as monitoring only, as the data collected may be used to determine if numeric limitations need to be established. A permittee is responsible for working with their contractors to ensure the analysis performed is sufficiently sensitive. 40 CFR 136 lists the approved methods accepted by the Department. Tables A1-B3 at 10 CSR 20-7.031 shows water quality standards.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS (TBEL):

One of the major strategies of the Clean Water Act (CWA) in making "reasonable further progress toward the national goal of eliminating the discharge of all pollutants" is to require effluent limitations based on the capabilities of the technologies available to control those discharges. Technology-based effluent limitations (TBELs) aim to prevent pollution by requiring a minimum level of effluent quality attainable using demonstrated technologies for reducing discharges of pollutants or pollution into the waters of the United States. TBELs are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and water quality-based effluent limitations (WQBELs). The NPDES regulations at Title 40 of the Code of Federal Regulations (CFR) 125.3(a) require NPDES permit writers to develop technology-based treatment requirements, consistent with CWA § 301(b) and § 402(a)(1), represent the minimum level of control imposed in a permit. The regulation also indicates permit writers must include in permits additional or more stringent effluent limitations and conditions, including those necessary to protect water quality. Regardless of the technology chosen to be the basis for limitations, the facility is not required to install the technology, only to meet the established TBEL.

Case-by-case TBELs are developed pursuant to CWA section 402(a)(1), which authorizes the administrator to issue a permit meeting either, 1) all applicable requirements developed under the authority of other sections of the CWA (e.g., technology-based treatment

standards, water quality standards) or, 2) before taking the necessary implementing actions related to those requirements, "such conditions as the administrator determines are necessary to carry out the provisions of this Act." The regulation at §125.3(c)(2) specifically cite this section of the CWA, stating technology-based treatment requirements may be imposed in a permit "on a case-by-case basis under section 402(a)(1) of the Act, to the extent EPA-promulgated effluent limitations are inapplicable." Further, §125.3(c)(3) indicates "where promulgated effluent limitations guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis to carry out the provisions of the act." When establishing case-by-case effluent limitations using best professional judgment, the permit writer should cite in the fact sheet or statement of basis both the approach used to develop the limitations, discussed below, and how the limitations carry out the intent and requirements of the CWA and the NPDES regulations.

Baselines to determine contaminants of concern are found in the *Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final* (EPA 821-R-00-020; August 2000). The baselines represent the treatable concentration of model technology which would effectually treat a pollutant. Chapter 6 Table 6-1 directs the permit writer to multiply the baseline by ten to determine if the parameter is a pollutant of concern. The following table determines the parameters for which a TBEL must be considered; baseline values are retrieved from chapter six.

POC = Pollutants of Concern
BPT = **Best Practicable Control Technology Currently Available** is defined at CWA section 304(b)(1)
BCT = **Best Conventional Pollutant Control Technology**, defined at CWA section 304(b)(4)
BAT = **Best Available Technology Economically Achievable** is defined at CWA section 304(b)(2)

When developing TBELs for industrial facilities, the permit writer must consider all applicable technology standards and requirements for all pollutants discharged above baseline level. Without applicable effluent guidelines for the discharge or pollutant, permit writers must identify any needed TBELs on a case-by-case basis, in accordance with the statutory factors specified in CWA sections 301(b)(2) and 304(b). The site-specific TBELs reflect the BPJ of the permit writer, taking into account the same statutory factors EPA would use in promulgating a national effluent guideline regulation, but they are applied to the circumstances relating to the applicant. The permit writer also should identify whether state laws or regulations govern TBELs and might require more stringent performance standards than those required by federal regulations. In some cases, a single permit could have TBELs based on effluent guidelines, best professional judgment, state law, and WQBELs based on water quality standards.

Best Practicable Control Technology Currently Available (BPT) is the first level of technology-based effluent controls for direct dischargers and it applies to all types of pollutants (conventional, nonconventional, and toxic). The Federal Water Pollution Control Act (FWPCA) amendments of 1972 require when EPA establishes BPT standards, it must consider the industry-wide cost of implementing the technology in relation to the pollutant-reduction benefits. EPA also must consider the age of the equipment and facilities, the processes employed, process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the EPA Administrator deems appropriate [CWA §304(b)(1)(B)]. Traditionally, EPA establishes BPT effluent limitations on the basis of the average of the best performance of well-operated facilities in each industrial category or subcategory. Where existing performance is uniformly inadequate, BPT may reflect higher levels of control than currently in place in an industrial category if the agency determines the technology can be practically applied. See CWA sections 301(b)(1)(A) and 304(b)(1)(B). Because the EPA has not promulgated TBELs for the pollutants identified as POCs, the permit writer follows the same format to establish site-specific TBELs. Although the numerical effluent limitations and standards are based on specific processes or treatment technologies to control pollutant discharges, EPA does not require dischargers to use these technologies. Individual facilities may meet the numerical requirements using whatever types of treatment technologies, process changes, and waste management practices they choose.

- ✓ The previous permit included a TBEL analysis for the cooling water discharge for outfalls #001 and #002. This TBEL analysis was considered to remain applicable to the discharge as the facility has not changed how they manage the cooling water at the site. The previous TBEL analysis did not find any contaminants of concern in the discharge (the analysis did not include thermal analysis). This permit contains water quality limits for thermal discharges. At this time, until the facility has completed the requirements associated with 40 CFR 122.21(r)(4), the department does not have sufficient data showing the aquatic population at the site; and a determination regarding the population balance and indigenous qualities of the aquatic organisms will be determined at the time of the next renewal.
- ✓ The previous permit also included a TBEL analysis for outfall #003, the ash pond outfall. While iron was detected, is was detected due to high background levels and the sluicing of ash; the water used for sluicing is Mississippi River water, high in iron deposits. This permit has considered the new regulations incorporated into the 2015 revised version of 40 CFR 423 where all pollutants in ash sluice water must cease to be discharged. Iron was not listed as a pollutant of concern in the ELG for this particular waste stream. This permit contains a special condition prohibiting the discharge of ash sluice wastewater from this site on and after December 31, 2023. This is BPT in accordance with the TBEL determination.

UNDERGROUND INJECTION CONTROL (UIC):
The UIC program for all classes of wells in the State of Missouri is administered by the Missouri Department of Natural Resources and approved by EPA pursuant to section 1422 and 1425 of the Safe Drinking Water Act (SDWA) and 40 CFR 147 Subpart AA. Injection wells are classified based on the liquids which are being injected. Class I wells are hazardous waste wells which are banned by RSMo 577.155; Class II wells are established for oil and natural gas production; Class III wells are used to inject fluids to extract minerals; Class IV wells are also banned by Missouri in RSMo 577.155; Class V wells are shallow injection wells; some examples are heat pump wells and groundwater remediation wells. Domestic wastewater being disposed of sub-surface is also considered a Class V well. In accordance with 40 CFR 144.82, construction, operation, maintenance, conversion, plugging, or closure of injection wells shall not cause movement of fluids containing any contaminant into Underground Sources of Drinking Water (USDW) if the presence of any contaminant may cause a violation of drinking water standards or groundwater standards under 10 CSR 20-7.031, or other health based standards, or may otherwise adversely affect human health. If the director finds the injection activity may endanger USDWs, the Department may require closure of the injection wells, or other actions listed in 40 CFR 144.12(c), (d), or (e). In accordance with 40 CFR 144.26, the permittee shall submit a Class V Well Inventory Form for each active or new underground injection well drilled, or when the status of a well changes, to the Missouri Department of Natural Resources, Geological Survey Program, P.O. Box 250, Rolla, Missouri 65402. The Class V Well Inventory Form can be requested from the Geological Survey Program or can be found at the following web address: http://dnr.mo.gov/forms/780-1774-f.pdf Single family residential septic systems and non-residential septic systems used solely for sanitary waste and have the capacity to serve fewer than 20 persons a day are excluded from the UIC requirements (40 CFR 144.81(9)).

✓ Not applicable; the permittee, while using a subsurface system for discharge of domestic wastewater, does not fall under these reporting requirements based on the capacity.

VARIANCE:
Per the Missouri Clean Water Law §644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

✓ Not applicable; this permit is not drafted under premise of a petition for variance.

VARIANCE, THERMAL - 316(A):
Section 316(a) of the Clean Water Act (CWA) applies to point sources with thermal discharges. It authorizes the NPDES permitting authority to impose alternative effluent limitations for the control of the thermal component of a discharge in lieu of the effluent limits otherwise required under section 301 or 306 of the CWA. Regulations implementing section 316(a) are codified at 40 CFR Part 125, subpart H. These regulations identify the criteria and process for determining whether an alternative effluent limitation (i.e., thermal variance from the otherwise applicable effluent limit) may be included in a permit and, if so, what the limit should be. This means, before a thermal variance can be granted, 40 CFR Parts 125.72 and 125.73 require the permittee to effectively demonstrate the protection and propagation of the waterbody's balanced, indigenous population (BIP) of shellfish, fish, and wildlife is being attained.

The burden of proof is on the permittee to demonstrate it is eligible to receive an alternative thermal effluent limit under section 316(a). The permittee must effectively demonstrate to the Department a varied thermal effluent limit is necessary to meet the requirements of sections 301 or 306, specifically 10 CSR 20-7.031(5)(D) and 10 CSR 20-7.031(5)(D)5, is more stringent than necessary to assure the protection and propagation of a BIP in and on the body of water into which the discharge is made.

✓ Not applicable; at this time, the permittee is not operating under a 316(a) variance. In April 2012, the facility submitted "Assessing Compliance of the Thermal Discharge from the New Madrid Generating Station". The department reviewed the Study Plan and request for modification. In August of 2012, the Department determined the application for modification was incomplete, and after further communications with the facility, the permit modification for thermal discharge was not completed. The facility submitted an additional report "Technical Review of: Thermal Plume Mapping and Modeling at the New Madrid Power Plant." Which stated: The CORMIX model is overly limited in its application to this thermal discharge including: 1) CORMIX cannot simulate the two large outfalls simultaneously; 2) CORMIX cannot account for the obstructions (barges) moored offshore; 3) CORMIX was unable to define the plume boundaries as observed; and 4); CORMIX could not model the discharge depth accurately for all conditions.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010(78)], the WLA is the amount of pollutant each discharger is allowed to discharge into the receiving stream without endangering water quality. Two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs) are reviewed. If one limit does not provide adequate protection for the receiving water, then the other must be used per 10 CSR 20-7.015(9)(A). Total Maximum Daily Loads, if required for this facility, were also reviewed.

✓ Applicable; wasteload allocations for toxic parameters were calculated using water quality criteria or water quality model results and by applying the dilution equation below; WLAs are calculated using the *Technical Support Document For Water Quality-Based Toxics Control* or TSD EPA/505/2-90-001; 3/1991.

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$

(EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

- ✓ Acute wasteload allocations designated as daily maximum limits (MDL) were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).
- ✓ Chronic wasteload allocations designated as monthly average limits (AML) were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ).
- ✓ Number of Samples "n": effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying assumption which should be, at a minimum, targeted to comply with the values dictated by the WLA. Therefore, it is recommended the actual planned frequency of monitoring be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4". For total ammonia as nitrogen, "n = 30" is used.

WASTELOAD ALLOCATION (WLA) MODELING:

Permittees may submit site specific studies to better determine the site specific wasteload allocations applied in permits.

- ✓ Not applicable; a WLA study was either not submitted or determined not applicable by Department staff.

PART IV. EFFLUENT LIMITS DETERMINATIONS

OUTFALLS #001, #002, AND COMPLIANCE POINT #007 – COOLING WATER

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD cfs	SEE PERMIT	SEE PERMIT	SAME	DAILY	MONTHLY	24 HR. TOT
TEMPERATURE	°F	SEE PERMIT	SEE PERMIT	SAME	DAILY	MONTHLY	MEASURED/ CALCULATED

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. The facility will measure the flows from outfalls #001 and #002 in cubic feet per second (cfs), and the flow of the river at the nearest gaging station in cfs.

Temperature

In accordance with 10 CSR 20-7.031(5)(D), water contaminant sources shall not cause or contribute to stream temperature in excess monthly limitations provided in the permit, or change the stream temperature by more than 5 degrees Fahrenheit. See pages 4 and 5 of the permit. These limitations are carried over from the previous permit. This permit provides for a weighted average of the discharge to determine the overall thermal discharge from the facility, not just considering one outfall at a time. Some minor language was changed to better reflect the thermal requirements of the river, and the monthly limitations associated with the limits; Tmax was changed to Tdev, to better show how permit violations are calculated. The annual Tdev requirement was implemented into the tables as a sum instead of a note and special condition.

Technology Assessment for Thermal Discharges

The EPA is required to promulgate technology-based limitations and standards reflecting pollutant reductions achievable by categories of industrial point sources using specific technologies. These national industrial wastewater controls are called effluent limitations guidelines and standards (effluent guidelines). Unlike other CWA tools, such as water quality standards, effluent guidelines are national in scope and establish performance standards for all facilities within an industrial category or subcategory. The EPA has not promulgated specific regulations regarding the minimum technology requirements for thermal discharges at power generating facilities or requirements limiting the temperature of the discharge. The facility has not supplied information regarding the costs or treatability of the thermal component of this wastewater therefore a site specific TBEL assessment for cooling water treatment technology was not completed at this time. Special conditions require the permittee submit several studies and statements which will be used in the future to determine the TBEL for cooling water treatment technology.

OUTFALLS #003 AND #004 – LOW VOLUME WASTES AND COAL PILE RUNOFF; BOILER SLAG DEWATERING; INTAKE

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	SAME	DAILY	MONTHLY	24 HR. TOT
CONVENTIONAL							
OIL & GREASE	mg/L	15	10	SAME	ONCE/MONTH	MONTHLY	GRAB
pH †	SU	6.0 to 9.0	6.0 to 9.0	6.5	ONCE/MONTH	MONTHLY	GRAB
TSS – INTAKE (#003 ONLY)	mg/L	*	*	SAME	ONCE/MONTH	MONTHLY	GRAB
TSS – GROSS DISCHARGE (#003)	mg/L	*	*	SAME	ONCE/MONTH	MONTHLY	GRAB
TSS – NET DISCHARGE	mg/L	100	30	SAME	ONCE/MONTH	MONTHLY	GRAB
METALS							
ALUMINUM, TR	µg/L	*	*	NEW	ONCE/YEAR	ANNUALLY	GRAB
NUTRIENTS							
AMMONIA AS N	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
KJELDAHL NITROGEN (TKN)	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
NITRATE PLUS NITRITE AS N	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
PHOSPHORUS, TOTAL P (TP)	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB

* monitoring and reporting requirement only
† report the minimum and maximum pH values; pH is not to be averaged
new parameter not established in previous state operating permit
TR total recoverable

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD), daily monitoring continued from previous permit.

CONVENTIONAL:

Oil & Grease

15 mg/L daily maximum; 10 mg/L monthly average; continued from previous permit. Oil and grease is considered a conventional pollutant. Oil and grease is a comprehensive test which measures for gasoline, diesel, crude oil, creosote, kerosene, heating oils, heavy fuel oils, lubricating oils, waxes, and some asphalt and pitch. The test can also detect some volatile organics such as benzene, toluene, ethylbenzene, or toluene, but these constituents are often lost during testing due to their boiling points. The facility reported from 2.75 to 7.4 mg/L. The permit writer completed an RPD on this parameter and found RP. Mixing for this conventional pollutant is not afforded because any visible sheen is considered a general criteria violation, Oils and greases of different densities will possibly form sheen or unsightly bottom deposits at levels which vary from 10 mg/L. To protect the general criteria, it is the responsibility of the permittee to visually observe the discharge and receiving waters for sheen or bottom deposits.
AQL Chronic: 10 mg/L per 10 CSR 20-7.031 Table A1
Set chronic standard equal to chronic WLA per TSD §5.4.2 (EPA/505/2-90-001); multiply by 1.5 to obtain acute limit.
10 mg/L * 1.5 = 15 mg/L

pH
6.0 to 9.0 SU – instantaneous grab sample. This facility has provided requisite information to allow 10 CSR 20-7.031(9)(I)1 and 40 CFR 401 can be applied as technology limits. The Mississippi provides assimilative capacity therefore water quality limitations of 6.5 to 9.0 are not required. pH may be increased or decreased due to plant processes discharging to these ponds. pH is a fundamental water quality indicator. Additionally, metals leachability and ammonia availability in wastewater is dependent on pH. Limitations in this permit will protect against aquatic organism toxicity, downstream water quality issues, human health hazard contact, and negative physical changes in accordance with the general criteria at 10 CSR 20-7.031(4) and the Clean Water Act's (CWA) goal of 100% fishable and swimmable rivers and streams.

Total Suspended Solids (TSS)
Technology limits: 100 mg/L daily maximum and 30 mg/L monthly average per 40 CFR 423.12(b)(3) for low volume waste sources. The previous permit allowed net limitations for the discharge; this is continued in this permit until the facility is required to stop sluicing ash by January 1, 2024. There are no water quality standards for this parameter. The facility shall measure the influent TSS and subtract the effluent TSS; report "0" if the value is negative. The facility will not use net valuing if no intake water was used at the specified outfall and not after January 1, 2024.

During the public notice, the facility indicated they no longer sluice ask to pond #004 therefore net limits are not available to outfall #004.

METALS:

Aluminum, Total Recoverable
New parameter. While the RPA calculator showed RP using discharge data of 1100 µg/L (71 µg/L background), the data supplied by the permittee in the application does not support the RP determination as permit limits would be 7540 µg/L daily maximum; 3758 µg/L monthly average due to the large mixing area supported by the Mississippi River. Because the permit writer has determined no RP without the use of the RPA calculator, the permit writer has reasonably asserted additional monitoring needs to be conducted. The RPA calculator uses a high multiplying factor when using only one data point to determine RP. The permit writer has determined because of this data calculating drawback, the permit can contain monitoring only for this parameter until a better determination can be made regarding the reasonable potential of this parameter.

Additionally, the neighboring facility, Magnitude 7 Metals, is an aluminum plant discharging high levels of aluminum into the river. In the future, this data may be use to model the Mississippi River in this area to assure the combination of the two dischargers continue to maintain the in-stream water quality standard for aluminum. While the New Madrid Power Plant may not be a significant contributor, they are still a contributor which a wasteload allocation should be assigned if required in the future. If the facility were not to monitor, then the facility would likely not receive a wasteload allocation therefore would not be permitted to discharge aluminum at all. Additional data are required to make further determinations.

NUTRIENTS:

Ammonia, Total as Nitrogen
Monthly monitoring of ammonia is required per 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or greater than 1 MGD.

Kjeldahl Nitrogen, Total (TKN)
Monthly monitoring of total Kjeldahl nitrogen is required per 10 CSR 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or above 1 MGD.

Nitrate plus Nitrite
Monthly monitoring of nitrate plus nitrite required per 10 CSR 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or above 1 MGD.

Phosphorus, Total P (TP)
Monthly monitoring of phosphorus is required per 10 CSR 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or above 1 MGD.

OUTFALLS #005 AND #008 – STORMWATER

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAXIMUM LIMIT	BENCH-MARK	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	n/a	NEW	TWICE/YEAR	TWICE ANNUALLY	24 HR. EST.
CONVENTIONAL							
COD	mg/L	**	120	NEW	TWICE/YEAR	TWICE ANNUALLY	GRAB
OIL & GREASE	mg/L	**	10	SAME ‡	TWICE/YEAR	TWICE ANNUALLY	GRAB
pH †	SU	**	6.0 to 9.0	6.5	TWICE/YEAR	TWICE ANNUALLY	GRAB
SETTLEABLE SOLIDS	mL/L/hr	**	1.5	SAME ‡	TWICE/YEAR	TWICE ANNUALLY	GRAB
TSS	mg/L	**	100	50	TWICE/YEAR	TWICE ANNUALLY	GRAB

* monitoring and reporting requirement only
** monitoring with associated benchmark
† report the minimum and maximum pH values; pH is not to be averaged
new parameter not established in previous state operating permit
‡ all parameters are new for outfall #008

DERIVATION AND DISCUSSION OF LIMITS:
Biannual sampling was completed in the previous permit cycle at outfall #005, outfall #008 requirements are all new.

PHYSICAL:

Flow
In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD). Reported 2.6 to 9.96 MGD in last permit term.

CONVENTIONAL:

Chemical Oxygen Demand (COD)
Monitoring with 120 mg/L daily maximum benchmark is included using the permit writer's best professional judgment. There is no numeric water quality standard for COD; however, increased oxygen demand may impact instream water quality. COD is also a valuable indicator parameter and is a pollutant noted frequently in the Multi-Sector General Permit (USEPA MSGP) of many industries. COD monitoring allows the permittee to identify increases in COD may indicate materials or chemicals coming into contact with stormwater causing an increase in oxygen demand. Increases in COD may indicate a need for maintenance or improvement of BMPs. The benchmark value falls within the range of values implemented in other permits having similar industrial activities and is achievable through proper BMP controls. The permit writer is using best professional judgment to require biannual sampling.

Oil & Grease
Monitoring with a daily maximum benchmark of 10 mg/L. The facility reported non-detect in the last permit term. Oil and grease is considered a conventional pollutant. Oil and grease is a comprehensive test which measures for gasoline, diesel, crude oil, creosote, kerosene, heating oils, heavy fuel oils, lubricating oils, waxes, and some asphalt and pitch. The test can also detect some volatile organics such as benzene, toluene, ethylbenzene, or toluene, but these constituents are often lost during testing due to their boiling points. It is recommended to perform separate testing for these constituents if they are a known pollutant of concern at the site, i.e. aquatic life toxicity or human health is a concern. Results do not allow for separation of specific pollutants within the test, they are reported, totaled, as "oil and grease". Per 10 CSR 20-7.031 Table A1: *Criteria for Designated Uses*; 10 mg/L is the standard for protection of aquatic life. This standard will also be used to protect the general criteria found at 10 CSR 20: 7.031 (4). Ten mg/L is the level at which sheen is expected to form on receiving waters. Oils and greases of different densities will possibly form sheen or unsightly bottom deposits at levels which vary from 10 mg/L. To protect the general criteria, it is the responsibility of the permittee to visually observe the discharge and receiving waters for sheen or bottom deposits. The benchmark is achievable through proper operational and maintenance of BMPs and falls within the range of values implemented in other permits having similar industrial activities.

pH
6.0 to 9.0 SU benchmark. The previous permit implemented a benchmark of 6.5 to 9.0 SU for this parameter; however, the technology values promulgated in 10 CSR 20-7.015(9)(I) were used to develop the new benchmark. The facility reported 7.6 to 8.0 in the application and 7.9 to 8.5 during the last permit cycle; showing no WQ RP.

Settleable Solids (SS)
Monitoring with a daily maximum benchmark of 1.5 mL/L/hour; continued from previous permit; the facility reported non-detect to 0.1 mL/L/hr during the last permit term. There is no numeric water quality standard for SS; however, sediment discharges can negatively impact aquatic life habitat. Settleable solids are also a valuable indicator parameter. Solids monitoring allows the permittee to identify increases in sediment and solids may indicate uncontrolled materials leaving the site. The benchmark value falls within the range of values implemented in other permits having similar industrial activities.

Total Suspended Solids (TSS)
Monitoring with a daily maximum benchmark of 100 mg/L; modified from previous permit of 50 mg/L. The facility reported 37.2 mg/L in the application and 14 to 71 mg/L during the last permit cycle (#005). There is no numeric water quality standard for TSS; however, sediment discharges can negatively impact aquatic life habitat. TSS is also a valuable indicator parameter. TSS monitoring allows the permittee to identify increases in TSS indicating uncontrolled materials leaving the site. Increased suspended solids in runoff can lead to decreased available oxygen for aquatic life and an increase of surface water temperatures in a receiving stream. Suspended solids can also be carriers of toxins, which can adsorb to the suspended particles; therefore, total suspended solids are a valuable indicator parameter for other pollution. The benchmark is achievable through proper operational and maintenance of BMPs and falls within the range of values implemented in other permits having similar industrial activities. An increase from 50 to 100 mg/L will not cause water quality degradation; there is no WQ RP for these outfalls at this time.

OUTFALL #009 – COAL PILE RUNOFF

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	NEW	WEEKLY	MONTHLY	24 HR. TOT
CONVENTIONAL							
OIL & GREASE	mg/L	15	10	NEW	ONCE/MONTH	MONTHLY	GRAB
pH †	SU	6.0 to 9.0	6.0 to 9.0	NEW	ONCE/MONTH	MONTHLY	GRAB
TSS	mg/L	50	*	NEW	ONCE/MONTH	MONTHLY	GRAB
NUTRIENTS							
AMMONIA AS N	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
KJELDAHL NITROGEN (TKN)	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
NITRATE PLUS NITRITE AS N	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
NITROGEN, TOTAL N (TN)	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB
PHOSPHORUS, TOTAL P (TP)	mg/L	*	*	NEW	ONCE/MONTH	MONTHLY	GRAB

* monitoring and reporting requirement only
† report the minimum and maximum pH values; pH is not to be averaged
new this is a new outfall, moved from outfall #003
TR total recoverable

DERIVATION AND DISCUSSION OF LIMITS:
At the time of issuance of the permit, the facility has not yet constructed the basin for this outfall; a construction permit will be required for an earthen basin.

PHYSICAL:

Flow
In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification. The facility will report the total flow in millions of gallons per day (MGD). This is a new outfall. It is important to determine the average monthly flow for the coal pile runoff therefore the initial sampling frequency is set at weekly. A week begins on Monday; for weeks split over two months, an additional sample is not required to be obtained; the sample will be included with the month of the day the sample occurred.

CONVENTIONAL:

Oil & Grease
15 mg/L daily maximum; 10 mg/L monthly average. Oil and grease is considered a conventional pollutant. Oil and grease is a comprehensive test which measures for gasoline, diesel, crude oil, creosote, kerosene, heating oils, heavy fuel oils, lubricating oils, waxes, and some asphalt and pitch. The test can also detect some volatile organics such as benzene, toluene, ethylbenzene, or toluene, but these constituents are often lost during testing due to their boiling points. The facility reported from 2.75 to 7.4 mg/L. The permit writer completed an RPD on this parameter and found RP. Mixing for this conventional pollutant is not afforded because any visible sheen is considered a general criteria violation, Oils and greases of different densities will possibly form sheen or unsightly bottom deposits at levels which vary from 10 mg/L. To protect the general criteria, it is the responsibility of the permittee to visually observe the discharge and receiving waters for sheen or oil deposits.
AQL Chronic: 10 mg/L per 10 CSR 20-7.031 Table A1
Set chronic standard equal to chronic WLA per TSD §5.4.2 (EPA/505/2-90-001); multiply by 1.5 to obtain acute limit.
10 mg/L * 1.5 = 15 mg/L

pH
6.0 to 9.0 SU – instantaneous grab sample. Technology limits [10 CSR 20-7.015(9)(I).] are applicable to this outfall; no pH RP.

Total Suspended Solids (TSS)
Technology limits: 50 mg/L daily maximum per 40 CFR 423.12(b)(9) for coal pile runoff.

NUTRIENTS:

Ammonia, Total as Nitrogen
Monthly monitoring of ammonia is required per 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or greater than 1 MGD.

Kjeldahl Nitrogen, Total (TKN)
Monthly monitoring of total Kjeldahl nitrogen is required per 10 CSR 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or above 1 MGD.

Nitrate plus Nitrite
Monthly monitoring of nitrate plus nitrite required per 10 CSR 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or above 1 MGD.

Phosphorus, Total P (TP)
Monthly monitoring of phosphorus is required per 10 CSR 20-7.015(9)(D)8.B. as this outfall's design flow is equal to or above 1 MGD.

PERMITTED FEATURES #011 – NO-DISCHARGE LEACHATE POND

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MINIMUM	MONTHLY AVERAGE MAX	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FREEBOARD	FEET	2		NEW	ONCE MONTH	MONTHLY	MEASUREMENT

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Freeboard

Monthly monitoring of the freeboard in the basin is required for the facility's operational controls. These permitted features were not constructed under a construction permit nor was an antidegradation review conducted. To ensure the basin remains no-discharge, comply with all BMPs listed, monitor freeboard/liquid levels, and report highest reading monthly. Permits only authorize discharges after the permittee has documented compliance with state and federal Clean Water laws and regulations, including antidegradation and construction requirements.

PART V. ADMINISTRATIVE REQUIREMENTS

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. http://dnr.mo.gov/env/wpp/cpp/docs/watershed-based-management.pdf. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than two years old, such data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

- ✓ This permit is not being synchronized at this time due to the complexity of the permit and the requirements set forth within the permit. The facility needs ample time to collect the required data prior to the next renewal.

PUBLIC NOTICE:
The Department shall give public notice a draft permit has been prepared and its issuance is pending. http://dnr.mo.gov/env/wpp/permits/pn/index.html Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in or with water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- ✓ The Public Notice period for this operating permit was from 11/8/2019 to 12/9/2019. No comments were received but a meeting between the Department and AECI took place on 12/9/2019; this meeting therefore extended the time for written comment by one week.
- ✓ Discussion topics included the CCR groundwater monitoring plan; instead of the sampling and analysis plan from 2015 which was submitted to the Department, they wish to follow the sampling and analysis plan for the CCR Rule. The SAP was received by the Department on 12/10/2019 and found to be sufficient for the purposes of monitoring the groundwater at the site.
- ✓ The facility commented that aluminum monitoring would be best suited for annual monitoring. He department agreed this was sufficient frequency to determine aluminum contributions of the site if future modeling was to occur for aluminum at this section of the river.
- ✓ It was noted that the nutrient monitoring requirements for outfalls #003, #004, and #009 were not in the permit; this was an oversight and all parties indicated it should have been included in the permit requirements (it was in the fact sheet).

DATE OF FACT SHEET: DECEMBER 30, 2019

COMPLETED BY:
PAM HACKLER, ENVIRONMENTAL SCIENTIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL UNIT
(573) 526-3386
pam.hackler@dnr.mo.gov

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

Part I – General Conditions
Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
   b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.

2. **Monitoring Requirements**.
   a. Records of monitoring information shall include:
      i. The date, exact place, and time of sampling or measurements;
      ii. The individual(s) who performed the sampling or measurements;
      iii. The date(s) analyses were performed;
      iv. The individual(s) who performed the analyses;
      v. The analytical techniques or methods used; and
      vi. The results of such analyses.
   b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.

3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

4. **Test Procedures**. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.

5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
   a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
   b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
      iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
      iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.

2. **Non-compliance Reporting.**
   a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.

c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

3. **Anticipated Noncompliance**. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.

4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.

5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.

6. **Other Information**. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

7. **Discharge Monitoring Reports.**
   a. Monitoring results shall be reported at the intervals specified in the permit.
   b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
   c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
   a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
   b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
   c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. **Bypass Requirements.**
   a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
   b. Notice.
      i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
      ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
   c. Prohibition of bypass.
      i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
         1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
         2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
         3. The permittee submitted notices as required under paragraph 2. b. of this section.
      ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.

3. **Upset Requirements.**
   a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
   b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      ii. The permitted facility was at the time being properly operated; and
      iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
      iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
   c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
   a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
   b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement

imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed $10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

2. **Duty to Reapply.**
   a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
   b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
   c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. **Proper Operation and Maintenance**. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

6. **Permit Actions.**
   a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
      i. Violations of any terms or conditions of this permit or the law;
      ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
      iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
      iv. Any reason set forth in the Law or Regulations.
   b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

7. **Permit Transfer.**
   a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
   b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
   c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.

8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
    a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
    d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.

12. **Closure of Treatment Facilities.**
    a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
    b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.

13. **Signatory Requirement.**
    a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
    b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
    c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.

Associated Electric Cooperative, Inc.

www.aeci.org • 417-881-1204 • FAX 417-885-9252
2814 S. Golden, P.O. Box 754 Springfield, Missouri 65801-0754

May 10, 2022

Water Protection Program
Missouri Department of Natural Resources
1101 Riverside Drive,
Jefferson City, MO 65101

RE: New Madrid NPDES Permit Modification Request (MO-0001171)

Ms. Pam Hackler,

Associated Electric Cooperative, Inc. is requesting an NPDES Permit Modification for the New Madrid Power Plant in Marston, MO. There are three separate modifications being requested and each are detailed below.

Outfall #001

AECI installed a submerged flight conveyor (SFC) on Unit 1 at the New Madrid Power Plant for compliance with EPA's Steam Electric ELGs and CCR Rule. Previously, bottom ash and slag would drop into a water filled slag tank below the boiler to be quenched and then through a clinker grinder to reduce particle size before being pumped (sluiced) to the ash pond for treatment and disposal. With the new SFC, the bottom ash and slag are quenched in an open water bath under the boiler. The bottom ash and slag settle to the bottom and a conveyor drags it out of the water bath to dewater.

With the sluice system, to keep the slag tank cool, water continually flowed through the tanks and discharged to Outfall #001. Previously, the slag tank overflow discharged (50 gpm) to Outfall #001 and sluice water (6,103 gpm) discharged to Outfall #003. The SFC will replace both flows with a single flow to Outfall #001. Like the slag tank, water needs to flow through the water bath for cooling. The SFC overflow has a maximum design capacity of 3,000 gpm.

Per our discussion, AECI has not included additional sample results for Outfall #001 for this permit modification, but please let me know if you need any additional information as you review this request. An antidegradation review was completed and it was determined that an anti-degradation review is not needed. The water balance has also been updated to show the change in flows as described in this letter which includes the removal of the flows to Outfall #003 from the U1 bottom ash systems due to the installation of the submerged flight conveyors.

Outfall #004

As described in the current NPDES permit, Outfall #004 has been terminated and the discharge is now being monitored as Outfall #009 with the only inflow being stormwater runoff. Outfall #004 can now be removed from the permit.

Associated Electric Cooperative, Inc.

www.aeci.org • 417-881-1204 • FAX 417-885-9252
2814 S. Golden, P.O. Box 754 Springfield, Missouri 65801-0754

Outfall #006

Outfall #006 consists of stormwater runoff from the Utility Waste Landfill. Historically, AECI had periodically pumped this discharge to Pond 003 for discharge through Outfall #003. AECI is proposing to route the pipe flows directly to the existing Pond 003 outlet structure, thereby no longer discharging into the main portion of Pond 003. These flows will then discharge along with the other remaining Pond 003 flows to the same drainage conveyance that routes water from existing Outfall #003 to the Mississippi River. No new pollutants of concern are being introduced into the process.

Sampling results for this outfall are included. Temperature data was not included as there is no heat added to the outfall. There are two parameters missing, but these are being sampled for and will be submitted as soon as results are received.

Outfall #010

This outfall is currently listed in the NPDES permit, but states that we must complete an antidegradation review prior to being able to discharge. The antidegradation review was completed and it was determined that an anti-degradation review is not needed. The pond will only receive non-contact stormwater flows from the capped and closed Lined Ash Pond to the west. Temperature data was not included as there is no heat added to the outfall.

Enclosed are the permit modification forms including an updated water balance diagram as well as the associated anti-degradation determinations. As discussed in a call to prepare this application, the information listed on the enclosed forms only include the data for the outfalls in which we are requesting changes. If you have any questions, or need any additional information, please contact me at 417-371-5405 or by email at jjones@aeci.org.

Sincerely,

Jennifer Jones
Supervisor, Land & Water Resources

Enclosures

REC'D 05/12/22 AP 39412

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
FORM A – APPLICATION FOR NONDOMESTIC PERMIT UNDER MISSOURI CLEAN WATER LAW

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED
JET PAY CONFIRMATION NUMBER	

PLEASE READ ALL THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM. SUBMITTAL OF AN INCOMPLETE APPLICATION MAY RESULT IN THE APPLICATION BEING RETURNED.

IF YOUR FACILITY IS ELIGIBLE FOR A NO EXPOSURE EXEMPTION:
Fill out the No Exposure Certification Form (Mo 780-2828): https://dnr.mo.gov/forms/780-2828-f.pdf

1. REASON FOR APPLICATION:

- ☐ a. This facility is now in operation under Missouri State Operating Permit (permit) MO – _____, is submitting an application for renewal, and there is no proposed increase in design wastewater flow. Annual fees will be paid when invoiced and there is no additional permit fee required for renewal.
- ☐ b. This facility is now in operation under permit MO – _____, is submitting an application for renewal, and there is a proposed increase in design wastewater flow. Antidegradation Review may be required. Annual fees will be paid when invoiced and there is no additional permit fee required for renewal.
- ☐ c. This is a facility submitting an application for a new permit (for a new facility). Antidegradation Review may be required. New permit fee is required.
- ☑ d. This facility is now in operation under Missouri State Operating Permit (permit) MO – 0001171 and is requesting a modification to the permit. Antidegradation Review may be required. Modification fee is required.

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
New Madrid Power Plant		(573) 643-2211	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
41 St. Jude Industrial Park	Marston	MO	63866

3. OWNER

NAME		TELEPHONE NUMBER WITH AREA CODE	
Associated Electric Cooperative, Inc.		(417) 881-1204	
EMAIL ADDRESS			
jjones@aeci.org			
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
2814 South Golden Avenue	Springfield	MO	65801

4. CONTINUING AUTHORITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Associated Electric Cooperative, Inc.		(417) 881-1204	
EMAIL ADDRESS			
jjones@aeci.org			
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
2814 South Golden Avenue	Springfield	MO	65801

5. OPERATOR CERTIFICATION

NAME	CERTIFICATE NUMBER	TELEPHONE NUMBER WITH AREA CODE	
ADDRESS (MAILING)	CITY	STATE	ZIP CODE

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
Kevin Farmer	Safety& Environmental Specialist	(573) 643-2211
E-MAIL ADDRESS		
kfarmer@aeci.org		

7. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary.

NAME			
Robert Eftink			
ADDRESS	CITY	STATE	ZIP CODE
Route 3, Box 628	Portageville	MO	63873

8. ADDITIONAL FACILITY INFORMATION

8.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)

For Universal Transverse Mercator (UTM), use Zone 15 North referenced to North American Datum 1983 (NAD83)

001 Land Grant 1107 ¼ ____ ¼ Sec ____ T 22N R 14E New Madrid County
UTM Coordinates Easting (X): 808109 Northing (Y): 4046792

006 NM ¼ SW ¼ Sec 33 T 22N R 14E New Madrid County
UTM Coordinates Easting (X): 808625 Northing (Y): 4045405

003 NW ¼ SW ¼ Sec 33 T 22N R 14E New Madrid County
UTM Coordinates Easting (X): 808625 Northing (Y): 4045405

010 NW ¼ SW ¼ Sec 33 T 22N R 14E New Madrid County
UTM Coordinates Easting (X): 808646 Northing (Y): 4045266

Include all subsurface discharges and underground injection systems for permit consideration.

8.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.

Primary SIC 4911 and NAICS 221112 SIC ____ and NAICS ____
SIC ____ and NAICS ____ SIC ____ and NAICS ____

9. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION

A. Is this permit for a manufacturing, commercial, mining, solid/hazardous waste, or silviculture facility? YES ☑ NO ☐
If yes, complete Form C.

B. Is the facility considered a "Primary Industry" under EPA guidelines (40 CFR Part 122, Appendix A) : YES ☑ NO ☐
If yes, complete Forms C and D.

C. Is wastewater land applied? YES ☐ NO ☑
If yes, complete Form I.

D. Are sludge, biosolids, ash, or residuals generated, treated, stored, or land applied? YES ☐ NO ☑
If yes, complete Form R.

E. Have you received or applied for any permit or construction approval under the CWA or any other environmental regulatory authority? YES ☑ NO ☐
If yes, please include a list of all permits or approvals for this facility:
Environmental Permits for this facility: Part 70 Operating Permit (OP2020-012) and Title IV Acid Rain Permit

F. Do you use cooling water in your operations at this facility? YES ☑ NO ☐
If yes, please indicate the source of the water: Mississippi River

G. Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.

10. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data. **One of the following must be checked in order for this application to be considered complete.** Please visit https://dnr.mo.gov/env/wpp/edmr.htmfor information on the Department's eDMR system and how to register.

☐ - I will register an account online to participate in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before any reporting is due, in compliance with the Electronic Reporting Rule.

☑ - I have already registered an account online to participate in the Department's eDMR system through MoGEM.

☐ - I have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.

☐ - The permit I am applying for does not require the submission of discharge monitoring reports.

11. FEES

Permit fees may be paid by attaching a check, or online by credit card or eCheck through the JetPay system. Use the URL provided to access JetPay and make an online payment:
For new permits: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591

For modifications: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596

12. 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 WITH AREA CODE
Ken Wilmot, SVP, COO	(417) 881-1204
SIGNATURE	DATE SIGNED
	5/5/22

MO 780-1479 (04-21)

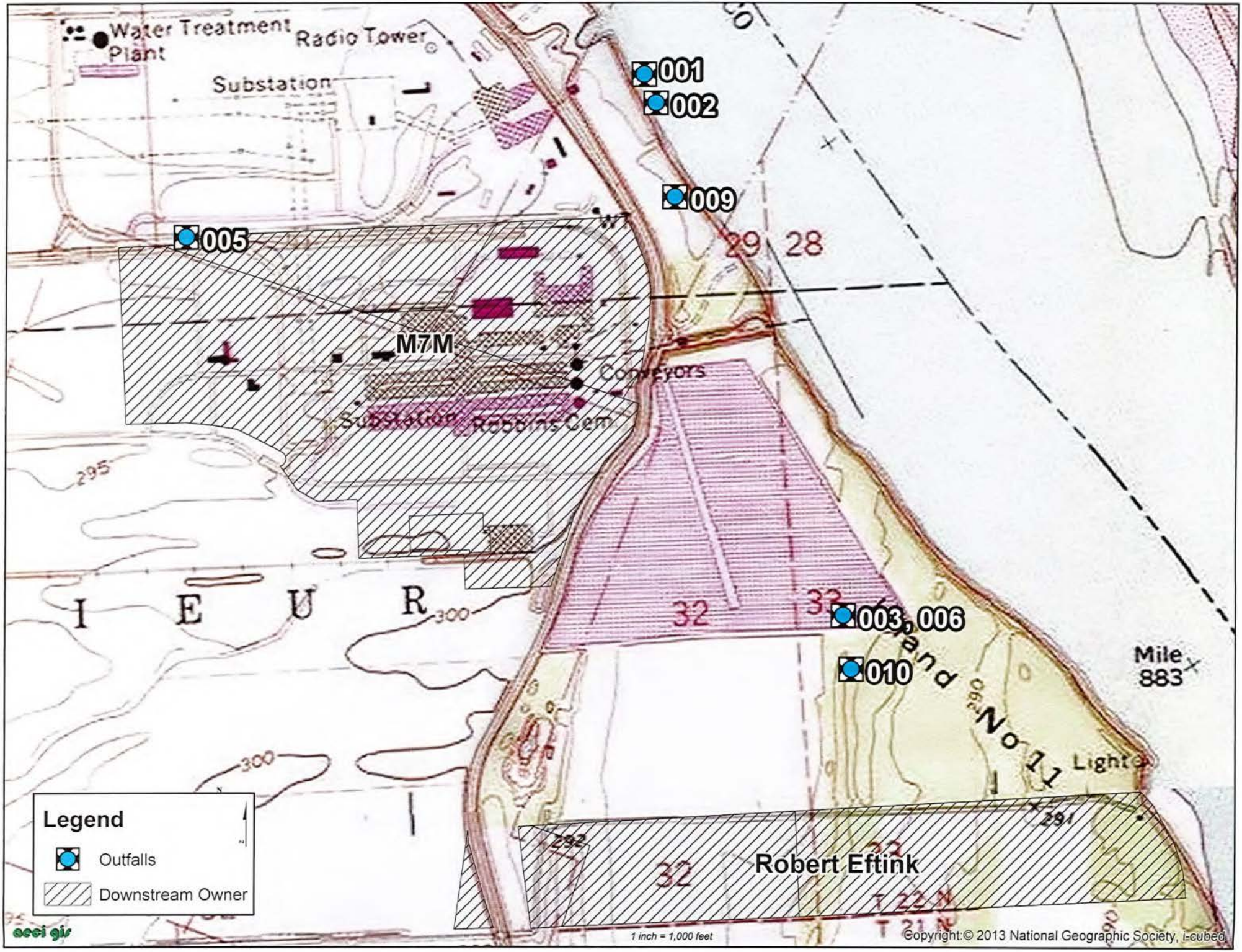
Form A Additional Data

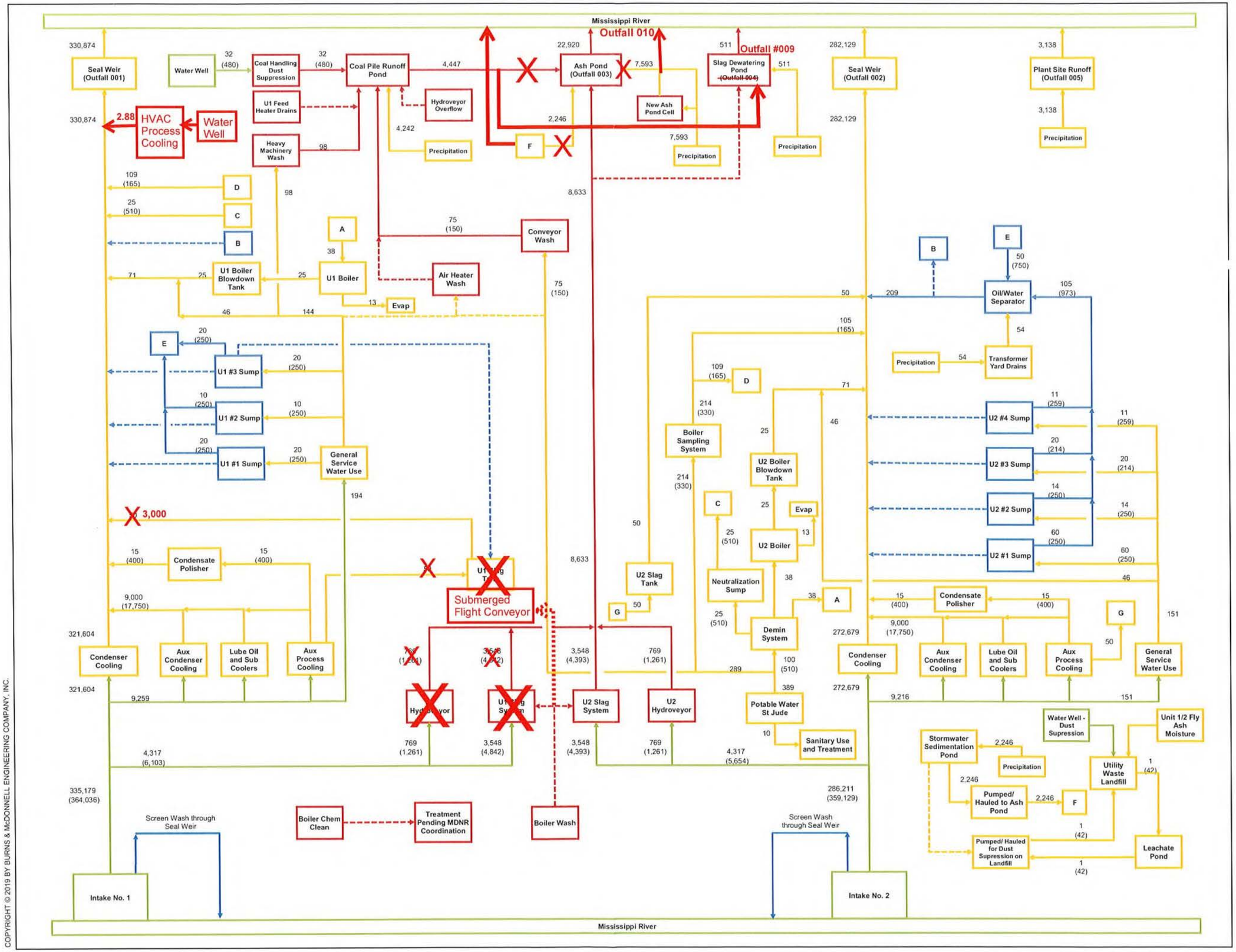
Section 7.: Additional Downstream Landowners

- Magnitude 7 Metals, LLC
  - 391 St. Jude Industrial Park, P. O. Box 395, Marston, MO 63866

Section 9.: Additional Environmental Permits

- Part 70 Permit to Operate – Permit #OP2020-012


Water Treatment Plant
Radio Tower
Substation
001
002
009
005
M7M
Conveyors
Robbins Cem
29
28
32
33
003, 006
010
Mile 883
Light
291
292
Robert Eftink
T 22 N
T 21 N
Legend
Outfalls
Downstream Owner
1 inch = 1,000 feet
Copyright:© 2013 National Geographic Society, i-cubed



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH

FORM C – APPLICATION FOR DISCHARGE PERMIT – MANUFACTURING, COMMERCIAL, MINING, SILVICULTURE OPERATIONS, AND STORMWATER

GENERAL INFORMATION (PLEASE SEE INSTRUCTIONS)

1.0 NAME OF FACILITY

New Madrid Power Plant

1.1 THIS FACILITY IS OPERATING UNDER MISSOURI STATE OPERATING PERMIT (MSOP) NUMBER:

MO-0001171

1.2 IS THIS A NEW FACILITY? PROVIDE CONSTRUCTION PERMIT (CP) NUMBER IF APPLICABLE.

1.3 Describe the nature of the business, in detail. Identify the goods and services provided by the business. Include descriptions of all raw, intermediate, final products, byproducts, or waste products used in the production or manufacturing process, stored outdoors, loaded or transferred and any other pertinent information for potential sources of wastewater or stormwater discharges.

Steam Electric Power Generation - Coal Fired Power Plant

FLOWS, TYPE, AND FREQUENCY

2.0 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 and maximum flows between intakes, operations, treatment units, evaporation, public sewers, and outfalls. If a water balance cannot by 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.

2.1 For each outfall (1) below, provide: (2) a description of all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, stormwater runoff, and any other process or non-process wastewater, (3) the average flow and maximum flow (put max in parentheses) contributed by each operation and the sum of those operations, (4) the treatment received by the wastewater, and (5) the treatment type code. Continue on additional sheets if necessary.

1. OUTFALL NO.	2. OPERATION(S) CONTRIBUTING FLOW; INCLUDE ALL PROCESSES AND SUB PROCESSES AT EACH OUTFALL	3. AVERAGE FLOW AND (MAXIMUM FLOW), INCLUDE UNITS.	4. TREATMENT DESCRIPTION	5. TREATMENT CODES FROM TABLE A
001	Unit 1 Cooler Water Discharge			4-A
	See attached for more detail			

Attach additional pages if necessary.

2.2 INTERMITTENT DISCHARGES

Except for stormwater runoff, leaks, or spills, are any of the discharges described in items 2.0 or 2.1 intermittent or seasonal?

☐ Yes *(complete the following table)* ☑ No *(go to section 2.3)*

1. OUTFALL NUMBER	2. OPERATION(S) CONTRIBUTING FLOW	3. FREQUENCY		4. FLOW				C. DURATION *(in days)*
				A. FLOW RATE *(in mgd)*		B. TOTAL VOLUME (specify with units)		
		A. DAYS PER WEEK *(specify average)*	B. MONTHS PER YEAR *(specify average)*	1. MAXIMUM DAILY	2. LONG TERM AVERAGE	4. LONG TERM DAILY	3. MAXIMUM AVERAGE	

2.3 PRODUCTION

A. Does an effluent limitation guideline (ELG) promulgated by EPA under section 304 of the Clean Water Act apply to your facility? Indicate the part and subparts applicable.

☑ Yes 40 CFR 423 Subpart(s) _____ ☐ No *(go to section 2.5)*

B. Are the limitations in the effluent guideline(s) expressed in terms of production (or other measure of operation)? Describe in C below.

☐ Yes *(complete C.)* ☑ No *(go to section 2.5)*

C. If you answered "yes" to B, list the quantity representing an 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.

A. OUTFALL(S)	B. QUANTITY PER DAY	C. UNITS OF MEASURE	D. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*

2.4 IMPROVEMENTS

A. Are you 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.

☑ Yes *(complete the following table)* ☐ No *(go to 2.6)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
			A. REQUIRED	B. PROJECTED
BATW - Unit 1	001	Install submerged flight conveyors on U1.	12/31/23	

B. Optional: provide below or attach additional sheets describing water pollution control programs or other environmental projects which may affect discharges. Indicate whether each program is underway or planned, and indicate actual or planned schedules for construction. This may include proposed bmp projects for stormwater.

2.5 SLUDGE MANAGEMENT

Describe the removal of any industrial or domestic biosolids or sludges generated at your facility. Include names and contact information for any haulers used. Note the frequency, volume, and methods (incineration, landfilling, composting, etc) used. See Form A for additional forms which may need to be completed.

DATA COLLECTION AND REPORTING REQUIREMENTS FOR APPLICANTS

3.0 EFFLUENT (AND INTAKE) CHARACTERISTICS (SEE INSTRUCTIONS)

A. & B. See instructions before continuing – complete one Table 1 for **each outfall** (and intake) – annotate the outfall (intake) number or designation in the space provided. The facility is not required to complete intake data unless required by the department or rule.

C. Use the space below to list any pollutants listed in the instructions section 3.0 C. Table B which you know or have reason to believe is discharged or may be discharged from any outfall not listed in parts 3.0 A or B on Table 1. For every pollutant listed, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	3. OUTFALL(S)	4. ANALYTICAL RESULTS (INCLUDE UNITS)
Asbestos	Insulation		
Uranium	Boiler Slag (possible trace amounts)		
Vanadium	Boiler Slag (possible trace amounts)		
Ammonia, Aqua	Used for pH adjustment of boiler water	001	
Sodium Hydroxide	Anion regeneration and neutralization	001	
Sulfuric Acid	Cation regeneration and neutralization	001	

3.1 Whole Effluent Toxicity Testing

A. To your knowledge, have any Whole Effluent Toxicity (WET) tests been performed on the facility discharges (or on receiving waters in relation to your discharge) within the last three years?

☑ Yes (go to 3.1 B) ☐ No (go to 3.2)

3.1 B

Disclose wet testing conditions, including test duration (chronic or acute), the organisms tested, and the testing results. Provide any results of toxicity identification evaluations (TIE) or toxicity reduction evaluations (TRE) if applicable. Please indicate the conclusions of the test(s) including any pollutants identified as causing toxicity and steps the facility is taking to remedy the toxicity.

Annual WET tests are conducted for Outfall 003 as required by the NPDES permit. These tests were successfully passed each year.

3.2 CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported herein, above, or on Table 1 performed by a contract laboratory or consulting firm?

☐ Yes (list the name, address, telephone number, and pollutants analyzed by each laboratory or firm.) ☐ No *(go to 4.0)*

A. LAB NAME	B. ADDRESS	C. TELEPHONE *(area code and number)*	D. POLLUTANTS ANALYZED *(list or group)*
Pace Analytical Services, LLC	2231 W. Altorfer Drive, Peoria, IL 61615	(800) 752-6651	All except pH, flow, temperature, and routine TSS.
Innovatia Laboratories, LLC	120 East Davis Street, Fayette, MO 65248-1911	(660) 248-1911	Form C Pollutants

4.0 STORMWATER

4.1
Do you have industrial stormwater discharges from the site? If so, attach a site map outlining drainage areas served by each outfall. Indicate the following attributes within each drainage area: pavement or other impervious surfaces; buildings; outdoor storage areas; material loading and unloading areas; outdoor industrial activities; structural stormwater control measures; hazardous waste treatment, storage, and disposal units; and wells or springs in the area.

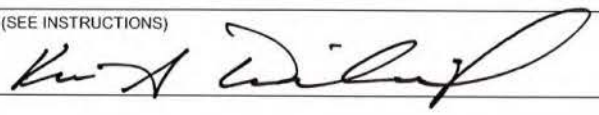
OUTFALL NUMBER	TOTAL AREA DRAINED (PROVIDE UNITS)	TYPES OF SURFACES (VEGETATED, STONE , PAVED, ETC)	BEST MANAGEMENT PRACTICES EMPLOYED; INCLUDE STRUCTURAL BMPS AND TREATMENT DESIGN FLOW FOR BMPS DESCRIBE HOW FLOW IS MEASURED
006	50 acres	Utility Waste Landfill	Flows are calcuated. Runoff is captured into sedimentation basins to
			allow for settling and residence time. All flows are pumped manually and
			water is observed prior to pumping. Erosion is controlled and interim cover
			is placed on areas of inactivity.
010	75 acres	Vegetated	Runoff area is vegetated and inspected often. Flows are captured in an
			impoundment to allow settling. All stormwater is non-contact.

4.2 STORMWATER FLOWS
Provide the date of sampling with the flows, and how the flows were estimated.
Flows were calculated based on expected storm events.

SIGNATORY REQUIREMENTS

5.0 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 WITH AREA CODE
Ken Wilmot, SVP, COO	(417) 881-1204
SIGNATURE (SEE INSTRUCTIONS)	DATE SIGNED
	5/5/22

Form C Additional Data

1. OUTFALL NO.	**2.** OPERATION(S) CONTRIBUTING FLOW; INCLUDE ALL PROCESSES AND SUB PROCESSES AT EACH OUTFALL	**3.** AVERAGE FLOW AND (MAXIMUM FLOW), INCLUDE UNITS.	**4.** TREATMENT DESCRIPTION	**5.** TREATMENT CODES FROM TABLE A
001	Sources:			
	a) Cooling Water	476.07 (552.869)	No Treatment	
	b) Boiler Blowdown	0.102	No Treatment	
	c) Boiler Sampling System	0.157 (0.2376)	No Treatment	
	d) Condensate Polisher	0.0216 (0.576)	No Treatment	
	e) Neutralization Sump	0.036 (0.7344)		2-K
	f) Screen Wash		No Treatment	
	g) HVAC Process Cooling	2.88 (2.88)	No Treatment	
	h) Submerged Flight Conveyor	4.32		1-G, 1-U
	Intermittent Sources:			
	i) Oil/Water Separator	0.3 (2.52)		1-H
	j) No. 3 Sump	0.0288 (0.36)	No Treatment	
	k) #1 and #2 Sumps (both units)	0.0432 (0.72)	No Treatment	
	l) Boiler Wash			
006	Landfill Contact Stormwater	3.23		1-U
010	Non-contact Stormwater	3.77		1-U

SEE INSTRUCTIONS; PLEASE PRINT OR TYPE.
You may report some or all of this information on separate sheet *(use similar format)* instead of completing these pages.

FORM C TABLE 1 FOR 3.0 - ITEMS A AND B

EFFLUENT (AND INTAKE) CHARACTERISTICS	THIS OUTFALL IS: Utility Waste Landfill Stormwater	OUTFALL NO. 006

3.0 PART A – You must provide the results of at least one analysis for every pollutant in Part A. Complete one table for each outfall or proposed outfall. See instructions.

1. POLLUTANT	2. VALUES							3. UNITS *(specify if blank)*	
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
A. Biochemical Oxygen Demand, 5-day (BOD_5)	6.1 mg/L		6.1 mg/L				1		
B. Chemical Oxygen Demand (COD)	90 mg/L		90 mg/L				1		
C. Total Organic Carbon (TOC)	19 mg/L		19 mg/L				1		
D. Total Suspended Solids (TSS)	30 mg/L		30 mg/L				1		
E. Ammonia as N	<0.10 mg/L		<0.10 mg/L				1		
F. Flow	VALUE		VALUE		VALUE			MILLIONS OF GALLONS PER DAY (MGD)	
G. Temperature *(winter)*	VALUE		VALUE		VALUE			°F	
H. Temperature *(summer)*	VALUE		VALUE		VALUE			°F	
I. pH	MINIMUM 7.50		MAXIMUM 7.50		AVERAGE		1	STANDARD UNITS (SU)	

3.0 PART B – Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark Column 2A for any pollutant, you must provide the results for at least one analysis for the pollutant. Complete one table for each outfall (intake). Provide results for additional parameters not listed here in Part 3.0 C.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants											
A. Alkalinity ($CaCO_3$)	X		MINIMUM 75		MINIMUM		MINIMUM		1	mgCaCO3/l	
B. Bromide (24959-67-9)	X		<10						1	mg/L	
C. Chloride (16887-00-6)	X		23						1	mg/L	
D. Chlorine, Total Residual	X		0.24						1	mg/L	
E. Color	X		60						1	color units	
F. Conductivity	X								1	uS/cm	
F. Cyanide, Amenable to Chlorination	X		<0.005						1	mg/L	

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants (Continued)											
G. *E. coli*	X		62						1	MPN/100ml	
H. Fluoride (16984-48-8)	X		<2.5						1	mg/L	
I. Nitrate plus Nitrate *(as N)*	X		<0.020						1	mg/L	
J. Kjeldahl, Total (as N)	X		3.3						1	mg/L	
K. Nitrogen, Total Organic *(as N)*	X		3.3						1	mg/L	
L. Oil and Grease	X		<5.0						1	mg/L	
M. Phenols, Total	X		<10						1	ug/L	
N. Phosphorus *(as P)*, Total (7723-14-0)	X		0.44						1	mg/L	
O. Sulfate *(as SO^4)* (14808-79-8)	X		1,600						1	mg/L	
P. Sulfide *(as S)*	X		<2.0						1	mg/L	
Q. Sulfite (as SO^3) (14265-45-3)	X		<2.0						1	mg/L	
R. Surfactants	X		0.53						1	mg/L	
S. Trihalomethanes, Total	X		<30						1	ug/L	
Subpart 2 – Metals											
1M. Aluminum, Total Recoverable (7429-90-5)	X		0.63						1	mg/L	
2M. Antimony, Total Recoverable (7440-36-9)	X		<0.0030						1	mg/L	
3M. Arsenic, Total Recoverable (7440-38-2)	X		0.0033						1	mg/L	
4M. Barium, Total Recoverable (7440-39-3)	X		0.065						1	mg/L	
5M. Beryllium, Total Recoverable (7440-41-7)	X		<0.0020						1	mg/L	
6M. Boron, Total Recoverable (7440-42-8)	X		2.4						1	mg/L	
7M. Cadmium, Total Recoverable (7440-43-9)	X		<0.0010						1	mg/L	
8M. Chromium III Total Recoverable (16065-83-1)	X		<5.0						1	ug/L	
9M. Chromium VI, Dissolved (18540-29-9)	X		<0.005						1	mg/L	
10M. Cobalt, Total Recoverable (7440-48-4)	X		<0.0020						1	mg/L	

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 2 – Metals (Continued)											
11M. Copper, Total Recoverable (7440-50-8)	X		0.0045						1	mg/L	
12M. Iron, Total Recoverable (7439-89-6)	X		0.64						1	mg/L	
13M. Lead, Total Recoverable (7439-92-1)	X		<0.0010						1	mg/L	
14M. Magnesium, Total Recoverable (7439-95-4)	X		14						1	mg/L	
15M. Manganese, Total Recoverable (7439-96-5)	X		0.25						1	mg/L	
16M. Mercury, Total Recoverable (7439-97-6)	X		<0.00020						1	mg/L	
17M. Methylmercury (22967926)	X		0.202						1	ng/L	
18M. Molybdenum, Total Recoverable (7439-98-7)	X		0.74						1	mg/L	
19M. Nickel, Total Recoverable (7440-02-0)	X		<0.0050						1	mg/L	
20M. Selenium, Total Recoverable (7782-49-2)	X		0.0028						1	mg/L	
21M. Silver, Total Recoverable (7440-22-4)	X		<0.0050						1	mg/L	
22M. Thallium, Total Recoverable (7440-28-0)	X		<0.0010						1	mg/L	
23M. Tin, Total Recoverable (7440-31-5)	X		<0.060						1	mg/L	
24M. Titanium, Total Recoverable (7440-32-6)	X		0.013						1	mg/L	
25M. Zinc, Total Recoverable (7440-66-6)	X		0.0080						1	mg/L	
Subpart 3 – Radioactivity **(Results attached)**											
1R. Alpha Total	X										
2R. Beta Total	X										
3R. Radium Total	X										
4R. Radium 226 plus 228 Total	X										

SEE INSTRUCTIONS; PLEASE PRINT OR TYPE.
You may report some or all of this information on separate sheet *(use similar format)* instead of completing these pages.

FORM C TABLE 1 FOR 3.0 - ITEMS A AND B

EFFLUENT (AND INTAKE) CHARACTERISTICS — THIS OUTFALL IS: Raw Water Pond - Non-contact stormwater — OUTFALL NO. 010

3.0 PART A – You must provide the results of at least one analysis for every pollutant in Part A. Complete one table for each outfall or proposed outfall. See instructions.

1. POLLUTANT	2. VALUES						D. NO. OF ANALYSES	3. UNITS *(specify if blank)*	
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES			A. CONCENTRATION	B. MASS
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
A. Biochemical Oxygen Demand, 5-day (BOD_5)	6		6				2	mg/L	
B. Chemical Oxygen Demand (COD)	43		43				2	mg/L	
C. Total Organic Carbon (TOC)	5.44						1	mg/L	
D. Total Suspended Solids (TSS)	26		26		24.5		2	mg/L	
E. Ammonia as N	<0.1						1		
F. Flow	VALUE		VALUE		VALUE			MILLIONS OF GALLONS PER DAY (MGD)	
G. Temperature *(winter)*	VALUE		VALUE		VALUE			°F	
H. Temperature *(summer)*	VALUE		VALUE		VALUE			°F	
I. pH	MINIMUM 8.57		MAXIMUM 8.57		AVERAGE		1	STANDARD UNITS (SU)	

3.0 PART B – Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark Column 2A for any pollutant, you must provide the results for at least one analysis for the pollutant. Complete one table for each outfall (intake). Provide results for additional parameters not listed here in Part 3.0 C.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants											
A. Alkalinity ($CaCO_3$)	X		MINIMUM 66		MINIMUM		MINIMUM		1	mgCaCO3/l	
B. Bromide (24959-67-9)	X		<1.0						1	mg/L	
C. Chloride (16887-00-6)	X		3.74						1	mg/L	
D. Chlorine, Total Residual	X		<0.1						1	mg/L	
E. Color	X		55						1	ALPHA	
F. Conductivity	X		236						1	uS/cm	
F. Cyanide, Amenable to Chlorination	X		<0.02						1	mg/L	

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants (Continued)											
G. *E. coli*	X		42						1	MPN/100ml	
H. Fluoride (16984-48-8)	X		<0.100						1	mg/L	
I. Nitrate plus Nitrate *(as N)*	X		1.48		1.48		0.84		2	mg/L	
J. Kjeldahl, Total (as N)	X		2.86		2.86		2.165		2	mg/L	
K. Nitrogen, Total Organic *(as N)*	X		2.86						1	mg/L	
L. Oil and Grease	X		<5.0						1	mg/L	
M. Phenols, Total	X		<1.0						1	mg/L	
N. Phosphorus *(as P)*, Total (7723-14-0)	X		<0.500						2	mg/L	
O. Sulfate *(as SO^4)* (14808-79-8)	X		44.7						1	mg/L	
P. Sulfide *(as S)*	X		<1.0						1	mg/L	
Q. Sulfite (as SO^3) (14265-45-3)	X		<1.0						1	mg/L	
R. Surfactants	X		<0.04						1	mg/L	
S. Trihalomethanes, Total	X		<0.005						1	mg/L	
Subpart 2 – Metals											
1M. Aluminum, Total Recoverable (7429-90-5)	X		0.360		0.360		0.3505		2	mg/L	
2M. Antimony, Total Recoverable (7440-36-9)	X		<0.008						1	mg/L	
3M. Arsenic, Total Recoverable (7440-38-2)	X		<0.008						1	mg/L	
4M. Barium, Total Recoverable (7440-39-3)	X		0.132						1	mg/L	
5M. Beryllium, Total Recoverable (7440-41-7)	X		<0.008						1	mg/L	
6M. Boron, Total Recoverable (7440-42-8)	X		0.912						1	mg/L	
7M. Cadmium, Total Recoverable (7440-43-9)	X		<0.008						1	mg/L	
8M. Chromium III Total Recoverable (16065-83-1)	X		<0.025						1	mg/L	
9M. Chromium VI, Dissolved (18540-29-9)	X		<0.025						1	mg/L	
10M. Cobalt, Total Recoverable (7440-48-4)	X		<0.008						1	mg/L	

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 2 – Metals (Continued)											
11M. Copper, Total Recoverable (7440-50-8)	X		<0.008						1	mg/L	
12M. Iron, Total Recoverable (7439-89-6)	X		0.547						1	mg/L	
13M. Lead, Total Recoverable (7439-92-1)	X		<0.008						1	mg/L	
14M. Magnesium, Total Recoverable (7439-95-4)	X		8.12						1	mg/L	
15M. Manganese, Total Recoverable (7439-96-5)	X		0.104						1	mg/L	
16M. Mercury, Total Recoverable (7439-97-6)	X		<0.0002						1	mg/L	
17M. Methylmercury (22967926)	X		0.046						1	ng/L	
18M. Molybdenum, Total Recoverable (7439-98-7)	X		0.128						1	mg/L	
19M. Nickel, Total Recoverable (7440-02-0)	X		<0.008						1	mg/L	
20M. Selenium, Total Recoverable (7782-49-2)	X		<0.008						1	mg/L	
21M. Silver, Total Recoverable (7440-22-4)	X		<0.008						1	mg/L	
22M. Thallium, Total Recoverable (7440-28-0)	X		<0.008						1	mg/L	
23M. Tin, Total Recoverable (7440-31-5)	X		<0.050						1	mg/L	
24M. Titanium, Total Recoverable (7440-32-6)	X		<0.020						1	mg/L	
25M. Zinc, Total Recoverable (7440-66-6)	X		<0.008						1	mg/L	
Subpart 3 – Radioactivity											
1R. Alpha Total		X									
2R. Beta Total		X									
3R. Radium Total		X									
4R. Radium 226 plus 228 Total		X									

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH

FORM D – APPLICATION FOR DISCHARGE PERMIT – PRIMARY INDUSTRIES

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

NOTE: DO NOT ATTEMPT TO COMPLETE THIS FORM BEFORE READING THE ACCOMPANYING INSTRUCTIONS

1.00 NAME OF FACILITY
New Madrid Power Plant

1.10 THIS FACILITY IS NOW IN OPERATION UNDER MISSOURI OPERATING PERMIT NUMBER
MO - 0011171

This form is to be filled out in addition to forms A and C "Application for Discharge Permit" for the Industries listed below:

INDUSTRY CATEGORY

Adhesives and sealants
Aluminum forming
Auto and other laundries
Battery manufacturing
Coal mining
Coil coating
Copper forming
Electric and electronic compounds
Electroplating
Explosives manufacturing
Foundries
Gum and wood chemicals
Inorganic chemicals manufacturing
Iron and steel manufacturing
Leather tanning and finishing
Landfill
Mechanical products manufacturing
Nonferrous metals manufacturing
Ore mining
Organic chemicals manufacturing
Paint and ink formulation
Pesticides
Petroleum refining
Pharmaceutical preparations
Photographic equipment and supplies
Plastic and synthetic materials manufacturing
Plastic processing
Porcelain enameling
Printing and publishing
Pulp and paperboard mills
Rubber processing
Soap and detergent manufacturing
Steam electric power plants
Textile mills
Timber products processing

APPLICATION FOR DISCHARGE PERMIT
FORM D – PRIMARY INDUSTRIES

TABLE II

NPDES # (*IF ASSIGNED*)	OUTFALL NUMBER
	006

1.30 If you are a primary industry and this outfall contains process wastewater, refer to Table A in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-A for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. Mark "X" in column 2-B for each pollutant you know or have reason to believe is present. Mark "X" in column 2-C for each pollutant you believe to be absent. If you mark either columns 2-A or 2-B for any pollutant, you must provide the results 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 NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT						D. NO. OF ANALYSES	4. UNITS		5. INTAKE (*optional*)		
	A. TEST-ING REQUIRED	B. BELIEVE D PRESENT	C. BELIEVE D ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)			A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-9)	✓			<0.0030						1	mg/L				
2M. Arsenic, Total (7440-38-2)	✓			0.0033						1	mg/L				
3M. Beryllium, Total (7440-41-7)	✓			<0.00020						1	mg/L				
4M. Cadmium, Total (7440-43-9)	✓			<0.0010						1	mg/L				
5M. Chromium III (16065-83-1)	✓			<5.0						1	ug/L				
6M. Chromium VI (18540-29-9)	✓			<0.005						1	mg/L				
7M. Copper, Total (7440-50-8)	✓			0.0045						1	mg/L				
8M. Lead, Total (7439-92-1)	✓			<0.0010						1	mg/L				
9M. Magnesium Total (7439-95-4)	✓			14						1	mg/L				
10M. Mercury, Total (7439-97-6)	✓			<0.00020						1	mg/L				
11M. Molybdenum Total (7439-98-7)	✓			0.74						1	mg/L				
12M. Nickel, Total (7440-02-0)	✓			<0.0050						1	mg/L				
13M. Selenium, Total (7782-49-2)	✓			0.0028						1	mg/L				
14M. Silver, Total (7440-22-4)	✓			<0.0050						1	mg/L				
15M. Thallium, Total (7440-28-0)	✓			<0.0010						1	mg/L				
16M. Tin Total (7440-31-5)	✓			<0.060						1	mg/L				
17M. Titanium Total (7440-32-6)	✓			0.013						1	mg/L				
18M. Zinc, Total (7440-66-6)	✓			0.0080						1	mg/L				

CONTINUED FROM PAGE 3

19M. Cyanide, Amenable to Chlorination	☑	☐	☐	<0.0050						1	mg/L				
20M. Phenols, Total	☑	☐	☐	<10						1	ug/L				
DIOXIN															
2,3,7,8 – Tetra – chlorodibenzo-P-Dioxin (1764-01-6)	☑	☐	☐	**DESCRIBE RESULTS** <2.9 pg/L											

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	<50						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	<50						1	ug/L				
3V. Benzene (71-43-2)	☐	☐	☐	<5.0						1	ug/L				
4V. Bis (*Chloromethyl*) Ether (542-88-1)	☐	☐	☐	<10000						1	ug/L				
5V. Bromoform (75-25-2)	☐	☐	☐	<5.0						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	<5.0						1	ug/L				
7V. Chlorobenzene (108-90-7)	☐	☐	☐	<5.0						1	ug/L				
8V. Chlorodibromomethane (124-48-1)	☐	☐	☐	<5.0						1	ug/L				
9V. Chloroethane (75-00-3)	☐	☐	☐	<10						1	ug/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)	☐	☐	☐												
11V. Chloroform (67-66-3)	☐	☐	☐	<5.0						1	ug/L				
12V. Dichlorobromomethane (75-27-4)	☐	☐	☐	<5.0						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	<5.0						1	ug/L				
14V. 1,1 – Dichloroethane (75-34-3)	☐	☐	☐	<5.0						1	ug/L				
15V. 1,2 – Dichloroethane (107-06-2)	☐	☐	☐	<5.0						1	ug/L				
16V. 1,1 – Dichloroethylene (75-35-4)	☐	☐	☐	<5.0						1	ug/L				
17V. 1,3 – Dichloropropane (78-87-5)	☐	☐	☐	<5.0						1	ug/L				
18V. 1,2 –Dichloropropylene (542-75-6)	☐	☐	☐	<15						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	<5.0						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	<10						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	<10						1	ug/L				

CONTINUE ON PAGE 4

NPDES # (*IF ASSIGNED*)	OUTFALL NUMBER

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	A. TESTING RE-QUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC.MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	☐	☐	☐	<5.0						1	ug/L				
23V. 1,1,2,2 – Tetra-chloroethane (79-34-5)	☐	☐	☐	<5.0						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	<5.0						1	ug/L				
25V. Toluene (108-88-3)	☐	☐	☐	<5.0						1	ug/L				
26V. 1,2 – Trans Dichloroethylene (156-60-5)	☐	☐	☐	<20						1	ug/L				
27V. 1,1,1 – Tri – chloroethane (71-55-6)	☐	☐	☐	<5.0						1	ug/L				
28V. 1,1,2 – Tri-chloroethane (79-00-5)	☐	☐	☐	<5.0						1	ug/L				
29V. Trichloro – ethylene (79-01-6)	☐	☐	☐	<5.0						1	ug/L				
30V. Trichloro – fluoromethane (75-69-4)	☐	☐	☐	<5.0						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	<5.0						1	ug/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2 – Chlorophenol (95-57-8)	☐	☐	☐	<10						1	ug/L				
2A. 2,4 – Dichloro – phenol (120-83-2)	☐	☐	☐	<10						1	ug/L				
3A. 2,4 – Dimethyl – phenol (105-67-9)	☐	☐	☐	<10						1	ug/L				
4A. 4,6 – Dinitro - O-Cresol (534-52-1)	☐	☐	☐	<50						1	ug/L				
5A. 2,4 – Dinitro – phenol (51-28-5)	☐	☐	☐	<20						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	<10						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	<20						1	ug/L				
8A. P – Chloro – M Cresol (59-50-7)	☐	☐	☐	<10						1	ug/L				
9A. Pentachloro – phenol (87-86-5)	☐	☐	☐	<50						1	ug/L				
10A. Phenol (108-952)	☐	☐	☐	<10						1	ug/L				
11A. 2,4,6 – Trichloro-phenol (88-06-2)	☐	☐	☐	<20						1	ug/L				
12A. 2 - methyl – 4,6 dinitrophenol (534-52-1)	☐	☐	☐	<50						1	ug/L				

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. 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															
1B. Acenaphthene (83-32-9)	☐	☐	☐	<10						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	<10						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	<10						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	<80						1	ug/L				
5B. Benzo (a) Anthracene (56-55-3)	☐	☐	☐	<10						1	ug/L				
6B. Benzo (a) Pyrene (50-32-8)	☐	☐	☐	<10						1	ug/L				
7B. 3,4 – Benzofluoranthene (205-99-2)	☐	☐	☐	<10						1	ug/L				
8B. Benzo (ghi) Perylene (191-24-2)	☐	☐	☐	<10						1	ug/L				
9B. Benzo (k) Fluoranthene (207-08-9)	☐	☐	☐	<10						1	ug/L				
10B. Bis (2-Chloroethoxy) Methane (111-91-1)	☐	☐	☐	<10						1	ug/L				
11B. Bis (2-Chloroethyl) Ether (111-44-4)	☐	☐	☐	<10						1	ug/L				
12B. Bis (2-Chloroisopropyl) Ether (39638-32-9)	☐	☐	☐	<10						1	ug/L				
13B. Bis (2-Ethylhexyl) Phthalate (117-81-7)	☐	☐	☐	<10						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	<10						1	ug/L				
15B. Butyl Benzyl Phthalate (85-68-7)	☐	☐	☐	<10						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	<10						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	<10						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	<10						1	ug/L				
19B. Dibenzo (a.h) Anthracene (53-70-3)	☐	☐	☐	<10						1	ug/L				
20B. 1,2 – Dichlorobenzene (95-50-1)	☐	☐	☐	<10						1	ug/L				
21B. 1,3 – Dichlorobenzene (541-73-1)	☐	☐	☐	<10						1	ug/L				

CONTINUED FROM PAGE 5

NPDES # (*IF ASSIGNED*)	OUTFALL NUMBER

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. 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)*															
22B. 1, 4-Dichlorobenzene (106-46-7)	☐	☐	☐	<10						1	ug/L				
23B. 3, 3'-Dichlorobenzidine (91-94-1)	☐	☐	☐	<20						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	<10						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	<10						1	ug/L				
26B. Di-N-butyl Phthalate (84-74-2)	☐	☐	☐	<10						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	<10						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	<10						1	ug/L				
29B. Di-N-Octyphthalate (117-84-0)	☐	☐	☐	<10						1	ug/L				
30B. 1,2-Diphenylhydrazine (*as Azobenzene)* (122-66-7)	☐	☐	☐	<10						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	<10						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	<10						1	ug/L				
33B. Hexachlorobenzene (87-68-3)	☐	☐	☐	<10						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	<10						1	ug/L				
35B. Hexachloro-cyclopentadiene (77-47-4)	☐	☐	☐	<20						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	<10						1	ug/L				
37B. Indeno (1,2,3-c-d) Pyrene (193-39-5)	☐	☐	☐	<10						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	<10						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	<10						1	ug/L				
40B. Nitrobenzene (98-95-3)	☐	☐	☐	<10						1	ug/L				
41B. N-Nitro-sodimethylamine (62-75-9)	☐	☐	☐	<10						1	ug/L				

CONTINUE ON PAGE 7

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	A. TES-ING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. 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)*															
42B. N-Nitroso N-Propylamine (621-64-7)	☐	☐	☐	<10						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	<10						1	ug/L				
44B. Phenanthrene (85-01-8)	☐	☐	☐	<10						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	<10						1	ug/L				
46B. 1,2,4-Tri chlorobenzene (120-82-1)	☐	☐	☐	<10						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☑												
2P. α-BHC (319-84-6)	☐	☐	☑												
3P. β-BHC (319-84-6)	☐	☐	☑												
4P. γ-BHC (58-89-9)	☐	☐	☑												
5P. δ-BHC (319-86-8)	☐	☐	☑												
6P. Chlordane (57-74-9)	☐	☐	☑												
7P. 4,4'-DDT (50-29-3)	☐	☐	☑												
8P. 4,4'-DDE (72-55-9)	☐	☐	☑												
9P. 4,4'-DDD (72-54-8)	☐	☐	☑												
10P. Dieldrin (60-57-1)	☐	☐	☑												
11P. α-Endosulfan (115-29-7)	☐	☐	☑												
12P. β-Endosultan (115-29-7)	☐	☐	☑												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☑												
14P. Endrin (72-20-8)	☐	☐	☑												
15P. Endrin Aldehyde (7421-93-4)	☐	☐	☑												
16P. Heptachlor (76-44-8)	☐	☐	☑												

CONTINUED ON PAGE 8

CONTINUED FROM PAGE 7

NPDES # (*IF ASSIGNED*)	OUTFALL NUMBER

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (*if available*)		C. LONG TERM AVRG. VALUE (*if available*)		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICISES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☑												
18P. PCB-1242 (53469-21-9)	☐	☐	☑												
19P. PBC-1254 (11097-69-1)	☐	☐	☑												
20P. PCB-1221 (11104-28-2)	☐	☐	☑												
21P. PCB-1232 (11141-16-5)	☐	☐	☑												
22P. PCB-1248 (12672-29-6)	☐	☐	☑												
23P. PCB-1260 (11096-82-5)	☐	☐	☑												
24P. PCB-1016 (12674-11-2)	☐	☐	☑												
25P. Toxaphene (8001-35-2)	☐	☐	☑												
J. RADIOACTIVITY **(See attached)**															
(1) Alpha Total	☐	☐	☐												
(2) Beta Total	☐	☐	☐												
(3) Radium Total	☐	☐	☐												
(4) Radium 226 Total	☐	☐	☐												

2.00 POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

A. IS ANY POLLUTANT LISTED IN ITEM 1.30 A SUBSTANCE OR A COMPONENT OF A SUBSTANCE WHICH YOU DO OR EXPECT THAT YOU WILL OVER THE NEXT FIVE YEARS USE OR MANUFACTURE AS AN INTERMEDIATE OR FINAL PRODUCT OR BYPRODUCT?

☐ **YES** *(LIST ALL SUCH POLLUTANTS BELOW)* ■ **NO** *(GO TO B)*

Form D in the permit modification is only for Outfall #006 which consists of only stormwater runoff therefore "No" was selected.

B. ARE YOUR OPERATIONS SUCH THAT YOUR RAW MATERIALS, PROCESSES OR PRODUCTS CAN REASONABLE BE EXPECTED TO VARY SO THAT YOUR DISCHARGES OF POLLUTANTS MAY DURING THE NEXT FIVE YEARS EXCEED TWO TIMES THE MAXIMUM VALUES REPORTED IN ITEM 1.30?

☐ **YES** *(COMPLETE C BELOW)* ■ **NO** *(GO TO SECTION 3.00)*

C. IF YOU ANSWERED "YES" TO ITEM B, EXPLAIN BELOW AND DESCRIBE IN DETAIL THE SOURCES AND EXPECTED LEVELS OF SUCH POLLUTANTS THAT YOU ANTICIPATE WILL BE DISCHARGED FROM EACH OUTFALL OVER THE NEXT FIVE YEARS, TO THE BEST OF YOUR ABILIITY AT THIS TIME. CONTINUE ON ADDITIONAL SHEETS IF YOU NEED MORE SPACE.

3.00 CONTRACT ANALYSIS INFORMATION

WERE ANY OF THE ANALYSES REPORTED IN 1.30 PERFORMED BY A CONTRACT LABORATORY OR CONSULTING FIRM?

■ **YES** *(LIST THE NAME, ADDRESS, AND TELEPHONE NUMBER OF, AND ANALYZED BY, EACH SUCH LABORATORY OR FIRM BELOW)*

☐ **NO** *(GO TO SECTION 4.00)*

A. NAME	B. ADDRESS	C. TELEPHONE *(area code and number)*	D. POLLUTANTS ANALYZED *(list)*
Pace Analytical Services, LLC	2231 W. Altorfer Drive,	(800) 752-6651	All
(previously PDC)	Peoria, IL 61615		
Inovatia Laboratories, LLC	120 East Davis Street	(660) 248-1911	Form C Constituents
	Fayette, MO 65248		

4.00 CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	PHONE NUMBER (AREA CODE AND NUMBER)
Ken Wilmot, SVP, COO	(417) 881-1204
SIGNATURE 	DATE SIGNED 5/5/22

INOVATIA® LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

12/1/2020

AECI New Madrid
41 St. Jude Road
New Madrid, MO 65801
Daniel Deck

Project Name/Number: Raw Water Pond / N/A
Chain of Custody Number: 20-1316

Date Received: November 5, 2020
Time Received: 11:30
Relinquished by: UPS
Sampler: M. Blattner

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Alkalinity	66	mg CaCO3/L	0.5	SM 2320 B	11/5/2020 - HM
Biochemical Oxygen Demand (5-day)	6 H	mg/L	2	SM 5210B	11/6/2020 - HM
Chemical Oxygen Demand (COD)	< 25	mg/L	25	SM 5220D	11/20/2020 - HM
Conductivity	236	uS/cm	1	SM 2510 B	11/5/2020 - HM
Color (True)	55	APHA	5	ASTM D1209-05	11/10/2020 - BD
Cyanide, Total	< 0.02	mg/L	0.02	SM 4500 CN E	11/13/2020 - SET
Nitrogen, Ammonia	< 0.1	mg/L	0.1	SM4500-NH3.B,D	11/10/2020 - HM
Nitrogen, Total Kjeldahl	2.86	mg/L	0.500	SM 4500-NH3D	11/17/2020 - SET
Nitrogen, Nitrate-Nitrite	1.48	mg/L	0.2	EPA 353.2	11/20/2020 - HM
Organic Nitrogen	2.86	mg/L	0.500	Calculation	11/20/2020 - HM
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 B	11/17/2020 - HM
Phenolics	< 0.050	mg/L	0.050	EPA 420.1	11/17/2020 - SET
pH (Liquid)	8.57 H	SU	N/A	SM 4500-H+/B	11/5/2020 - HM
Chlorine, Total Residual	< 0.1 H	mg/L	0.1	SM 4500-Cl G	11/5/2020 - HM
Total Suspended Solids (TSS)	26	mg/L	5	SM 2540 D	11/10/2020 - HM
Total Organic Carbon (TOC)	5.44	mg/L	1.00	SM 5310B	11/22/2020 - SET
Sulfide	< 1.00 H	mg/L	1.00	EPA 9034	11/24/2020 - SET
Sulfite	< 1.00 H	mg/L	1.00	SM4500-SO3B	11/22/2020 - SET
Surfactants (MBAS)	< 0.04 H	mg/L	0.04	EPA 425.1	11/19/2020 - BD
Bromide	< 0.100	mg/L	0.100	EPA 300.0	11/18/2020 - SET
Chloride	3.74	mg/L	1.00	EPA 300.0	11/18/2020 - SET
Fluoride	< 0.100	mg/L	0.100	EPA 300.0	11/18/2020 - SET
Sulfate	44.7	mg/L	1.00	EPA 300.0	11/18/2020 - SET
Total Coliform	> 2420 H	MPN/100mL	1	IDEXX	11/5/2020 - HM
E. coli - MPN	42 H	MPN/100mL	1	IDEXX	11/5/2020 - HM

Notes:
Sample Hue: Yellow

Report Date: 12/01/20

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Chromium, Hexavalent	< 0.025 H	mg/L	0.025	SM 3500 Cr B	11/5/2020 - HM
Chromium, Trivalent	< 0.025	mg/L	0.025	Calculation	11/9/2020 - BD/HM
Hardness	93.8	mg eq CaCO3/L	1.65	SM 2340 B	11/9/2020 - BD
Beryllium, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Boron, Total	0.912	mg/L	0.025	EPA 200.8	11/6/2020 - BD
Magnesium, Total	8.12	mg/L	0.250	EPA 200.8	11/6/2020 - BD
Aluminum, Total	0.360	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Phosphorus, Total	< 0.500	mg/L	0.500	EPA 200.7	11/16/2020 - SET
Calcium, Total	24.2	mg/L	0.250	EPA 200.8	11/6/2020 - BD
Titanium, Total	< 0.020	mg/L	0.020	EPA 200.7	11/16/2020 - SET
Chromium, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Manganese, Total	0.104	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Iron, Total	0.547	mg/L	0.250	EPA 200.8	11/6/2020 - BD
Cobalt, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Nickel, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Copper, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Zinc, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Arsenic, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Selenium, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Silver, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Cadmium, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Tin, Total	< 0.050	mg/L	0.050	EPA 200.7	11/17/2020 - SET
Antimony, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Barium, Total	0.132	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Mercury, Total	< 0.0002	mg/L	0.0002	EPA 245.1	11/16/2020 - SET

Notes:

Report Date: 12/01/20

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Thallium, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Lead, Total	< 0.008	mg/L	0.008	EPA 200.8	11/6/2020 - BD
Acrolein	< 0.050	mg/L	0.050	EPA 624	11/17/2020 - SET
Acrylonitrile	< 0.050	mg/L	0.050	EPA 624	11/17/2020 - SET
Benzene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Bromodichloromethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Bromoform	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Bromomethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Carbon tetrachloride	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Chlorobenzene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Chlorodibromomethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Chloroethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
2-Chloroethyl vinyl ether	< 0.010	mg/L	0.010	EPA 624	11/17/2020 - SET
Chloroform	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Chloromethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,1-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,2-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
trans-1,2-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
trans-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
cis-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,1-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET

Notes:

Report Date: 12/01/20

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Tetrachloroethene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,2-Dichlorpropane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Ethylbenzene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Methylene chloride	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,1,2,2-Tetrachloroethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Toluene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,1,1-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
1,1,2-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Trichlorofluoromethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Trichloroethene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Vinyl chloride	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Dichlorodifluoromethane	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Xylene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Naphthalene	< 0.005	mg/L	0.005	EPA 624	11/17/2020 - SET
Total Trihalomethanes	< 0.005	mg/L	0.005	EPA 624 / Calculation	11/17/2020 - SET

Notes:

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
2-Chlorophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2,4-Dichlorophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2,4-Dimethylphenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
4,6-Dinitro-o-cresol	< 0.070	mg/L	0.070	EPA 625	11/19/2020 - SET
2,4-Dinitrophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
p-Chloro-m-cresol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Pentachlorophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Phenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2,4,6-Trichlorophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2,4,6--Trichlorophenol	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
1,2,4-Trichlorobenzene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
4-Nitrophenol	< 0.040	mg/L	0.040	EPA 625	11/19/2020 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
1,2-Diphenylhydrazine	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2,4-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2,6-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
2-Chloronaphthalene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
3,3'-Dichlorobenzidine	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
4-Bromophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
4-Chlorophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Benzo(k)fluoranthene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET

Notes:

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Acenaphthene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
bis (2-Chloroethoxy) methane	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Acenaphthylene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Anthracene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Butyl benzyl phthalate	< 0.010	mg/L	0.010	EPA 625	11/19/2020 - SET
Benzo (a) anthracene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Benzo (a) pyrene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Benzidine	< 0.085	mg/L	0.085	EPA 625	11/19/2020 - SET
Benzo (b) Fluoranthene	< 0.010	mg/L	0.010	EPA 625	11/19/2020 - SET
bis (2-Chloroethyl) ether	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
bis (2-chloroisopropyl) ether	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
bis (2-Ethylhexyl) phthalate	< 0.080	mg/L	0.080	EPA 625	11/19/2020 - SET
Benzo (ghi) perylene	< 0.015	mg/L	0.015	EPA 625	11/19/2020 - SET
Chrysene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Dibenzo (a,h)anthracene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Diethyl phthalate	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Dimethyl phthalate	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Di-n-butyl phthalate	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Di-n-octyl phthalate	< 0.030	mg/L	0.030	EPA 625	11/19/2020 - SET
Fluoranthene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Fluorene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Hexachlorobenzene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET

Notes:

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Indeno (1,2,3-cd) pyrene	< 0.014	mg/L	0.014	EPA 625	11/19/2020 - SET
Isophorone	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Naphthalene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
N-Nitrosodimethylamine	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
N-Nitrosodiphenylamine	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
N-Nitrosodi-n-propylamine	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Nitrobenzene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Phenanthrene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Pyrene	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
Hexachlorocyclopentadiene	< 0.060	mg/L	0.060	EPA 625	11/19/2020 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 625	11/19/2020 - SET
4,4'-DDE	< 0.0001	mg/L	0.0001	EPA 608	11/28/2020 - SET
4,4' DDD	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
4,4'-DDT	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
4,4'-Methoxychlor	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aldrin	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aroclor 1016	< 0.0002	mg/L	0.0002	EPA 608	11/16/2020 - SET
Aroclor 1221	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aroclor 1232	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aroclor 1242	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aroclor 1248	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aroclor 1254	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Aroclor 1260	< 0.0002	mg/L	0.0002	EPA 608	11/16/2020 - SET
Dieldren	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET

Notes:

Report Date: 12/01/20

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 20-1316
Project Name / Number: Raw Water Pond / N/A
Date Collected: 11/03/20
Time Collected: 10:20

Sample Number: Raw Water Pond
Lab Number: 204233
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Endosulfan I	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Endosulfan II	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Endosulfan sulfate	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Endrin	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Endrin aldehyde	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Endrin ketone	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Heptachlor	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Heptachlor epoxide	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
Toxaphene	< 0.0023	mg/L	0.0023	EPA 608	11/16/2020 - SET
alpha-Chlordane	< 0.0012	mg/L	0.0012	EPA 608	11/16/2020 - SET
alpha-BHC	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
beta-BHC	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
delta-BHC	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
gamma-BHC (Lindane)	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET
gamma-Chlordane	< 0.0001	mg/L	0.0001	EPA 608	11/16/2020 - SET

Notes:

Report Date: 12/01/20

INOVATIA® LABORATORIES, LLC
www.inovatia.com

CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030
PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 20-1316
DATE REPORTED: 2020/12/1
INVOICE NUMBER: 25598

Contact Name: Daniel Deck
Company Name: AECI - New Madrid
Address: 41 St. Jude Industrial Park Hwy
City, State, Zip: Marston, MO 63866
E-Mail:
Phone Number:
Fax Number:
Project Name / Number: Raw Water Pond
Quote Number: 121207
Purchase Order Number:
Project Due Date:
Comments:
Sampler's Name: (please print) N Blathnic
Sampler's Signature:

DISPOSITION INFORMATION
- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: UPS
CUSTODY SEALS: ☐ YES ☒ NO ☐ INTACT ☐ BROKEN
COOLANT: ☒ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 1.1 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☒ SAMPLE ☐ COOLER / CONTAINER

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	NUMBER PER PRESERVATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other:	Other:	REQUESTED ANALYSES: BOD, TSS, pH	Alkalinity, CN	TRC, COD, Color	Anions*, Sulfide	Sulfite, TSS, CrVI	HEM, MBAS, NH3	TKN, N/N, Phenol	TOC, Metals, TTO	E. Coli, Total Coli+	
Method Number →																								
1	204233	Raw Water Pond	11/32	1052	Water		26								X	X	X	X	X	X	X	X	X	
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:
*Bromide, Chloride, Fluoride
Sulfate
See quote for full list of metals

Relinquished By:	Date: 11/32	Time:	Received By:	Date:	Time:
Relinquished By: UPS	Date: 2020-11-05	Time: 1130	Received By: Penny Goff	Date: 2020-11-05	Time: 1130

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form. Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

When You Want Innovation, Think Inovatia™

INOVATIA® LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

5/11/2021

AECI New Madrid
41 St. Jude Road
New Madrid, MO 65801
Daniel Deck

Project Name/Number: N/A / N/A
Chain of Custody Number: 21-0546

Date Received: May 5, 2021
Time Received: 12:00
Relinquished by: UPS
Sampler: Kevin Davis

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 21-0546
Project Name / Number: N/A / N/A
Date Collected: 05/04/21
Time Collected: 13:00

Sample Number: 010
Lab Number: 211489
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Molybdenum, Total	0.128	mg/L	0.003	EPA 200.8	5/1/2021 - BD

Notes:

Report Date: 05/11/21

CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
www.inovatia.com

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 21-0546
DATE REPORTED: 2021/05/11
INVOICE NUMBER: 26195

Contact Name: Daniel Deck
Company Name: AECI - New Madrid
Address: 41 St. Jude Industrial Park Hwy
City, State, Zip: Marston, MO 63866
E-Mail:

Phone Number:
Fax Number:
Project Name / Number:
Quote Number:
Purchase Order Number:

Project Due Date:
Comments:
Sampler's Name: (please print) Kevin Davis
Sampler's Signature: Kevin Davis

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: UPS
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☐ ICE ☑ ICE PACK ☐ NONE
PACKAGE TYPE: cooler
ARRIVAL TEMPERATURE: 2-6 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	NUMBER PER PRESERVATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other:	Other:	REQUESTED ANALYSES: Mo
1	211489	010	5/4/2021	1300	Water	/	1								X
2															
3															
4															
5															
6															
7															
8															
9															
10															

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:

CUSTODY

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Kevin Davis	5/4/2021	1400			
UPS	2021-05-05	1200	Penny G/I	2021-05-05	1200

When You Want Innovation, Think Inovatia™

INOVATIA® LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

5/17/2021

AECI New Madrid
41 St. Jude Road
New Madrid, MO 65801
Daniel Deck

Project Name/Number: N/A / N/A
Chain of Custody Number: 21-0545

Date Received: May 5, 2021
Time Received: 12:00
Relinquished by: UPS
Sampler: Kevin Davis

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 21-0545
Project Name / Number: N/A / N/A
Date Collected: 05/04/21
Time Collected: 13:00

Sample Number: 010
Lab Number: 211488
Sample Matrix: Water
Sample Type: N/A

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Biochemical Oxygen Demand (5-day)	< 6	mg/L	6	SM 5210B	5/5/2021 - HM
Chemical Oxygen Demand (COD)	43	mg/L	25	SM 5220D	5/7/2021 - HM/BD
Nitrogen, Ammonia	< 0.1	mg/L	0.1	SM4500-NH3.B,D	5/11/2021 - HM
Nitrogen, Total Kjeldahl	1.47	mg/L	0.500	SM 4500-NH3 D	5/13/2021 - SET
Nitrogen, Nitrate-Nitrite	< 0.2	mg/L	0.2	EPA 353.2	5/11/2021 - HM
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 B	5/6/2021 - BD/KB
Total Suspended Solids (TSS)	23	mg/L	5	SM 2540 D	5/12/2021 - KB/HM
Aluminum, Total	0.341	mg/L	0.010	EPA 200.8	5/10/2021 - BD/KB
Phosphorus, Total	< 0.500	mg/L	0.500	EPA 200.7	5/12/2021 - SET

Notes:

Report Date: 05/17/21

CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
www.inovatia.com

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 21-0545
DATE REPORTED: 2021/05/17
INVOICE NUMBER: 21219

Contact Name: Daniel Deck
Company Name: AECI - New Madrid
Address: 41 St. Jude Industrial Park Hwy
City, State, Zip: Marston, MO 63866
E-Mail:

Phone Number:
Fax Number:
Project Name / Number:
Quote Number:
Purchase Order Number:

Project Due Date:
Comments:
Sampler's Name: (please print) Kevin Davis
Sampler's Signature: Kevin Davis

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: UPS
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☐ ICE ☑ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 2.6 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

REQUESTED ANALYSES

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number → / NUMBER PER PRESERVATIVE: HCl	HNO_3 **	NaOH	H_2SO_4 **	TSP	Other:	Other:	BOD	COD **	TSS	NH_3 **	P *	HEM **	Nitrate/Nitrite **	TKN **	Al *
1	211488	010	5/4/2021	1300	Water		6		1		4				X	X	X	X	X	X	X	X	X
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:
* upon arrival

Relinquished By: Kevin Davis	Date: 5/4/2021	Time: 1400	Received By:	Date:	Time:
Relinquished By: UPS	Date: 2021-05-05	Time: 1200	Received By: Penny Gf	Date: 2021-05-05	Time: 1200

When You Want Innovation, Think Inovatia™

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

April 08, 2022

Daniel Deck
AECI - New Madrid
PO Box 156
New Madrid, MO 63869

RE: AECI NM PERMIT RENEWAL 2021

Dear Daniel Deck:

Please find enclosed the **revised** analytical results for the **2** sample(s) the laboratory received on **1/12/22 2:00 pm** and logged in under work order **FA02034**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of Pace Analytical Services, LLC.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

Pace Analytical Services appreciates the opportunity to provide you with analytical expertise . We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lisa.grant@pacelabs.com.

Gail g Schindler

Gail Schindler
Project Manager
(309) 692-9688 x1716
gail.schindler@pacelabs.com

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order FA02034

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
YES	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
YES	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
YES	Short hold time analysis
YES	Current PDC COC submitted
YES	Case narrative provided

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

Case Narrative

Trihalomethane = <30 ug/l. Trihalomethane is the sum of chloromethane, bromomethane, chlorodibromomethane and bromodichloromethane.

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Soluble General Chemistry - Pace Analytical - Minneapolis									
2,3,7,8-TCDD	<2.9	pg/L		01/12/22 08:38	1	2.9	02/01/22 13:30		Subcontracted

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Subcontracted Analysis - Pace Analytical - Redding CA									
Methyl Mercury	0.202	ng/L		01/12/22 08:38	1	0.05	02/16/22 00:00		Report Attached

Sample: FA02034-02
Name: OUTFALL 10
Matrix: Waste Water - Grab

Sampled: 01/12/22 09:00
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Subcontracted Analysis - Pace Analytical - Redding CA									
Methyl Mercury	0.046 J	ng/L		01/12/22 09:00	1	0.05	02/16/22 00:00		Report Attached

ANALYTICAL RESULTS

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Anions - PIA									
Bromide	< 10	mg/L		01/15/22 14:12	10	10	01/15/22 14:12	CRD	EPA 300.0 REV 2.1
Chloride	23	mg/L		01/15/22 14:12	10	10	01/15/22 14:12	CRD	EPA 300.0 REV 2.1
Fluoride	< 2.50	mg/L		01/15/22 14:12	10	2.50	01/15/22 14:12	CRD	EPA 300.0 REV 2.1
Sulfate	1600	mg/L		01/15/22 14:31	250	250	01/15/22 14:31	CRD	EPA 300.0 REV 2.1
General Chemistry - PIA									
Alkalinity - total as CaCO3	75	mg/L	M	01/18/22 09:37	1	10	01/18/22 09:37	JAA	SM 2320B 1997
BOD	6.1	mg/L	C	01/14/22 08:28	1	4.0	01/14/22 08:28	JAA\JLW	SM 5210B 2001
COD	90	mg/L		01/17/22 09:48	1	6.0	01/17/22 10:05	CJP	SM 5220 D 1997
Cyanide	< 0.0050	mg/L		01/17/22 08:51	1	0.0050	01/17/22 15:31	CRS1	EPA 335.4 REV1
Cyanide - amenable	< 0.0050	mg/L		01/17/22 15:31	1	0.0050	01/17/22 15:31	CRS1	EPA 335.4 REV1
Oil & Grease - total	< 5.0	mg/L		01/17/22 08:35	1.0007	5.0	01/17/22 16:36	NWT	EPA 1664A
Solids - total suspended solids (TSS)	30	mg/L		01/14/22 10:06	1	4.0	01/14/22 11:05	ADM/JLC 1	SM 2540 D 1997
Sulfide	< 2.0	mg/L		01/19/22 14:51	1	2.0	01/19/22 14:52	nwt	SM 4500 S2 F 2000
Sulfite	< 2.0	mg/L	FP, H	01/21/22 09:18	1	2.0	01/21/22 09:18	ADM/BCR	SM 4500SO3 B 2000
Total Organic Carbon (TOC)	19	mg/L		01/18/22 05:41	5	2.5	01/18/22 05:41	CRD	SM 5310C 2000
Phenolics	< 0.0050	mg/L		01/19/22 10:18	1	0.0050	01/20/22 11:02	CRS1	EPA 420.4 Rev1
Organic Nitrogen	3.3	mg/L		01/17/22 09:03	1	1.0	01/19/22 13:18	CJP	Calculated - See Notes
Organic-Nitrogen	3.3	mg/L		01/17/22 09:03	1	1.0	01/19/22 13:18	CJP	Calculated - See Notes
General Chemistry - STL									
Chlorine - Total Residual	0.24	mg/L	FP, H	01/18/22 10:26	1	0.10	01/18/22 10:55	CLH	SM 4500-Cl G
Color	60	Color Units		01/14/22 09:02	1	5.0	01/14/22 09:02	BCH	SM 2120B 2001
Hexavalent chromium	< 0.005	mg/L		01/12/22 15:51	1	0.005	01/12/22 16:03	CLH	SM 3500-Cr B
Surfactants - MBAS	0.53	mg/L		01/14/22 08:25	1	0.10	01/14/22 08:33	SJP	SM 5540C 2000
Trivalent Chromium	< 5.0	ug/L		01/18/22 07:32	1	5.0	01/20/22 14:48	CLH	Calculated - See Notes
Microbiology - STL									
E. coli	62	MPN/100 mL		01/12/22 14:41	1	10	01/12/22 14:41	SJP	SM 9223B - QT
Nutrients - PIA									
Ammonia-N	< 0.10	mg/L		01/14/22 12:28	1	0.10	01/14/22 12:28	CRS1	EPA 350.1 REV2
Nitrate/Nitrite-N	< 0.020	mg/L		01/14/22 09:27	1	0.020	01/14/22 09:27	BMS	EPA 353.2 REV 2
Phosphorus - total as P	0.44	mg/L		01/17/22 11:17	1	0.10	01/19/22 13:52	CRS1	SM 4500P F 1999

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Total Kjeldahl Nitrogen (TKN)	3.3	mg/L		01/17/22 09:03	1	1.0	01/19/22 13:18	CJP	OIA/PAI-DK03 & EPA 351.2 REV 2
Semivolatile Organics - PIA									
N-Nitrosodimethylamine	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Phenol	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Bis(2-chloroethyl) ether	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
2-Chlorophenol	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
1,3-Dichlorobenzene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
1,4-Dichlorobenzene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
1,2-Dichlorobenzene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Bis(2-chloroisopropyl) ether	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
N-Nitrosodi-n-propylamine	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Hexachloroethane	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Nitrobenzene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Isophorone	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
2-Nitrophenol	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
2,4-Dimethylphenol	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Bis(2-chloroethoxy) methane	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
2,4-Dichlorophenol	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
1,2,4-Trichlorobenzene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Naphthalene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Hexachlorobutadiene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
4-Chloro-3-methylphenol	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Hexachlorocyclopentadiene	< 20	ug/L		01/14/22 07:33	1	20	01/17/22 22:15	CRS	EPA 625
2,4,6-Trichlorophenol	< 20	ug/L		01/14/22 07:33	1	20	01/17/22 22:15	CRS	EPA 625
2-Chloronaphthalene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Dimethyl phthalate	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
2,6-Dinitrotoluene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Acenaphthylene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Acenaphthene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
2,4-Dinitrophenol	< 20	ug/L		01/14/22 07:33	1	20	01/17/22 22:15	CRS	EPA 625
4-Nitrophenol	< 20	ug/L		01/14/22 07:33	1	20	01/17/22 22:15	CRS	EPA 625
2,4-Dinitrotoluene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Diethyl phthalate	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Fluorene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
4-Chlorophenylphenyl ether	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
4,6-Dinitro-2-methylphenol	< 50	ug/L		01/14/22 07:33	1	50	01/17/22 22:15	CRS	EPA 625
N-Nitrosodiphenylamine	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
1,2-Diphenylhydrazine	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
4-Bromophenyl phenyl ether	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Hexachlorobenzene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Pentachlorophenol	< 50	ug/L		01/14/22 07:33	1	50	01/17/22 22:15	CRS	EPA 625
Phenanthrene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Anthracene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Di-n-butyl phthalate	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Fluoranthene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Benzidine	< 80	ug/L		01/14/22 07:33	1	80	01/17/22 22:15	CRS	EPA 625
Pyrene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Butyl benzyl phthalate	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Benzo(a)anthracene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
3,3'-Dichlorobenzidine	< 20	ug/L		01/14/22 07:33	1	20	01/17/22 22:15	CRS	EPA 625
Chrysene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Bis(2-ethylhexyl) phthalate	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Di-n-octyl phthalate	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Benzo(b)fluoranthene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Benzo(k)fluoranthene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Benzo(a)pyrene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Indeno(1,2,3-cd)pyrene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Dibenzo(a,h)anthracene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Benzo(g,h,i)perylene	< 10	ug/L		01/14/22 07:33	1	10	01/17/22 22:15	CRS	EPA 625
Soluble Metals - PIA									
Aluminum	0.70	mg/L		01/20/22 11:44	1	0.010	01/21/22 09:21	JMW	EPA 200.8 REV 5.4
Mercury	< 0.00020	mg/L	Q3	01/20/22 08:05	1	0.00020	01/20/22 09:38	ZZZ	EPA 245.1 REV3
Antimony	< 0.0030	mg/L		01/20/22 11:44	1	0.0030	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Arsenic	0.0031	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Barium	0.066	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Beryllium	< 0.00020	mg/L		01/20/22 11:44	1	0.00020	01/20/22 14:51	KMC	EPA 200.8 REV 5.4
Boron	1.8	mg/L		01/20/22 11:44	1	0.0030	01/20/22 14:51	KMC	EPA 200.8 REV 5.4
Cadmium	< 0.0010	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Cobalt	< 0.0020	mg/L		01/20/22 11:44	1	0.0020	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Copper	0.0043	mg/L		01/20/22 11:44	1	0.0030	01/20/22 15:30	JMW	EPA 200.8 REV 5.4

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Iron	0.011	mg/L		01/21/22 08:31	1	0.010	01/21/22 15:06	TJJ	EPA 200.7 REV 4.4
Lead	< 0.0010	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Magnesium	14	mg/L		01/20/22 11:44	1	0.10	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Manganese	0.24	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Molybdenum	0.70	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Nickel	< 0.0050	mg/L		01/20/22 11:44	1	0.0050	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Selenium	0.0026	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Silver	< 0.0050	mg/L		01/20/22 11:44	1	0.0050	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Thallium	< 0.0010	mg/L		01/20/22 11:44	1	0.0010	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Tin	< 0.060	mg/L		01/21/22 08:31	1	0.060	01/21/22 09:19	TJJ	EPA 200.7 REV 4.4
Titanium	< 0.0050	mg/L		01/21/22 08:31	1	0.0050	01/21/22 15:06	TJJ	EPA 200.7 REV 4.4
Zinc	0.0095	mg/L		01/20/22 11:44	1	0.0060	01/20/22 15:30	JMW	EPA 200.8 REV 5.4
Total Metals - PIA									
Aluminum	0.63	mg/L		01/18/22 07:32	5	0.050	01/21/22 09:10	JMW	EPA 200.8 REV 5.4
Mercury	< 0.00020	mg/L		01/19/22 06:41	1	0.00020	01/19/22 09:50	DLE	EPA 245.1 REV3
Antimony	< 0.0030	mg/L		01/18/22 07:32	1	0.0030	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Arsenic	0.0033	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Barium	0.065	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Beryllium	< 0.0020	mg/L		01/18/22 07:32	5	0.0020	01/21/22 09:10	JMW	EPA 200.8 REV 5.4
Boron	2.4	mg/L		01/18/22 07:32	5	0.050	01/21/22 09:10	JMW	EPA 200.8 REV 5.4
Cadmium	< 0.0010	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Chromium	< 0.0040	mg/L		01/18/22 07:32	1	0.0040	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Cobalt	< 0.0020	mg/L		01/18/22 07:32	1	0.0020	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Copper	0.0045	mg/L		01/18/22 07:32	1	0.0030	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Iron	0.64	mg/L		01/18/22 07:32	1	0.010	01/20/22 13:20	TJJ	EPA 200.7 REV 4.4
Lead	< 0.0010	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Magnesium	14	mg/L		01/18/22 07:32	1	0.10	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Manganese	0.25	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Molybdenum	0.74	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Nickel	< 0.0050	mg/L		01/18/22 07:32	1	0.0050	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Selenium	0.0028	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Silver	< 0.0050	mg/L		01/18/22 07:32	1	0.0050	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Thallium	< 0.0010	mg/L		01/18/22 07:32	1	0.0010	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Tin	< 0.060	mg/L		01/18/22 07:32	1	0.060	01/18/22 10:27	TJJ	EPA 200.7 REV 4.4
Titanium	0.013	mg/L		01/18/22 07:32	1	0.0050	01/20/22 13:20	TJJ	EPA 200.7 REV 4.4

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-01
Name: OUTFALL 006
Matrix: Waste Water - Grab

Sampled: 01/12/22 08:38
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Zinc	0.0080	mg/L		01/18/22 07:32	1	0.0060	01/20/22 14:48	JMW	EPA 200.8 REV 5.4
Volatile Organics - PIA									
1,3-Dichloropropane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
1,1,1-Trichloroethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Bis(chloromethyl) ether	< 10000	ug/L		01/14/22 08:47	1	10000	01/14/22 19:26	SEB	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Dichlorodifluoromethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Trichlorofluoromethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
1,3-Dichloropropene - Total	< 15	ug/L		01/14/22 08:47	1	15	01/14/22 19:26	SEB	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
trans-1,2-Dichloroethene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Acrolein	< 50	ug/L		01/14/22 08:47	1	50	01/14/22 19:26	SEB	EPA 624
Acrylonitrile	< 50	ug/L		01/14/22 08:47	1	50	01/14/22 19:26	SEB	EPA 624
Benzene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Bromodichloromethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Bromoform	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Methyl bromide	< 10	ug/L		01/14/22 08:47	1	10	01/14/22 19:26	SEB	EPA 624
Carbon tetrachloride	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Chlorobenzene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Chloroethane	< 10	ug/L		01/14/22 08:47	1	10	01/14/22 19:26	SEB	EPA 624
Chloroform	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Methyl chloride	< 10	ug/L		01/14/22 08:47	1	10	01/14/22 19:26	SEB	EPA 624
Dibromochloromethane	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
trans-1,2-Dichloroethene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Ethylbenzene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Methylene chloride	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Tetrachloroethene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Toluene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Trichloroethene	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624
Vinyl chloride	< 5.0	ug/L		01/14/22 08:47	1	5.0	01/14/22 19:26	SEB	EPA 624

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

ANALYTICAL RESULTS

Sample: FA02034-02
Name: OUTFALL 10
Matrix: Waste Water - Grab

Sampled: 01/12/22 09:00
Received: 01/12/22 14:00

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Oil & Grease - total	< 5.0	mg/L		01/17/22 08:35	1.003412	5.0	01/17/22 16:37	NWT	EPA 1664A

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221659 - 04-No Prep WC - SM 3500-Cr B									
Calibration Blank (B221659-CCB1)				Prepared & Analyzed: 01/12/22					
Hexavalent chromium	0.0004	mg/L							
Calibration Check (B221659-CCV1)				Prepared & Analyzed: 01/12/22					
Hexavalent chromium	0.101	mg/L		0.1000		101	90-110		
Batch B221802 - No Prep - EPA 353.2 REV 2									
Blank (B221802-BLK1)				Prepared & Analyzed: 01/14/22					
Nitrate/Nitrite-N	< 0.020	mg/L							
Blank (B221802-BLK2)				Prepared & Analyzed: 01/14/22					
Nitrate/Nitrite-N	< 0.020	mg/L							
Blank (B221802-BLK3)				Prepared & Analyzed: 01/14/22					
Nitrate/Nitrite-N	< 0.020	mg/L							
LCS (B221802-BS1)				Prepared & Analyzed: 01/14/22					
Nitrate/Nitrite-N	1.03	mg/L		1.000		103	90-110		
LCS (B221802-BS2)				Prepared & Analyzed: 01/14/22					
Nitrate/Nitrite-N	1.07	mg/L		1.000		107	90-110		
LCS (B221802-BS3)				Prepared & Analyzed: 01/14/22					
Nitrate/Nitrite-N	1.02	mg/L		1.000		102	90-110		
Batch B221809 - EPA 625/8270 - EPA 625									
Blank (B221809-BLK1)				Prepared: 01/14/22 Analyzed: 01/17/22					
N-Nitrosodimethylamine	< 10	ug/L							
Phenol	< 10	ug/L							
Bis(2-chloroethyl) ether	< 10	ug/L							
2-Chlorophenol	< 10	ug/L							
1,3-Dichlorobenzene	< 10	ug/L							
1,4-Dichlorobenzene	< 10	ug/L							
1,2-Dichlorobenzene	< 10	ug/L							
Bis(2-chloroisopropyl) ether	< 10	ug/L							
N-Nitrosodi-n-propylamine	< 10	ug/L							
Hexachloroethane	< 10	ug/L							
Nitrobenzene	< 10	ug/L							
Isophorone	< 10	ug/L							
2-Nitrophenol	< 10	ug/L							
2,4-Dimethylphenol	< 10	ug/L							
Bis(2-chloroethoxy) methane	< 10	ug/L							
2,4-Dichlorophenol	< 10	ug/L							
1,2,4-Trichlorobenzene	< 10	ug/L							
Naphthalene	< 10	ug/L							
Hexachlorobutadiene	< 10	ug/L							
4-Chloro-3-methylphenol	< 10	ug/L							
Hexachlorocyclopentadiene	< 20	ug/L							
2,4,6-Trichlorophenol	< 20	ug/L							

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221809 - EPA 625/8270 - EPA 625									
Blank (B221809-BLK1)				Prepared: 01/14/22 Analyzed: 01/17/22					
2-Chloronaphthalene	< 10	ug/L							
Dimethyl phthalate	< 10	ug/L							
2,6-Dinitrotoluene	< 10	ug/L							
Acenaphthylene	< 10	ug/L							
Acenaphthene	< 10	ug/L							
2,4-Dinitrophenol	< 20	ug/L							
4-Nitrophenol	< 20	ug/L							
2,4-Dinitrotoluene	< 10	ug/L							
Diethyl phthalate	< 10	ug/L							
Fluorene	< 10	ug/L							
4-Chlorophenylphenyl ether	< 10	ug/L							
4,6-Dinitro-2-methylphenol	< 50	ug/L							
N-Nitrosodiphenylamine	< 10	ug/L							
1,2-Diphenylhydrazine	< 10	ug/L							
4-Bromophenyl phenyl ether	< 10	ug/L							
Hexachlorobenzene	< 10	ug/L							
Pentachlorophenol	< 50	ug/L							
Phenanthrene	< 10	ug/L							
Anthracene	< 10	ug/L							
Di-n-butyl phthalate	< 10	ug/L							
Fluoranthene	< 10	ug/L							
Benzidine	< 80	ug/L							
Pyrene	< 10	ug/L							
Butyl benzyl phthalate	< 10	ug/L							
Benzo(a)anthracene	< 10	ug/L							
3,3'-Dichlorobenzidine	< 20	ug/L							
Chrysene	< 10	ug/L							
Bis(2-ethylhexyl) phthalate	< 10	ug/L							
Di-n-octyl phthalate	< 10	ug/L							
Benzo(b)fluoranthene	< 10	ug/L							
Benzo(k)fluoranthene	< 10	ug/L							
Benzo(a)pyrene	< 10	ug/L							
Indeno(1,2,3-cd)pyrene	< 10	ug/L							
Dibenzo(a,h)anthracene	< 10	ug/L							
Benzo(g,h,i)perylene	< 10	ug/L							
LCS (B221809-BS1)				Prepared: 01/14/22 Analyzed: 01/17/22					
N-Nitrosodimethylamine	21.9	ug/L		50.00		44	30.4-120		
Phenol	33.5	ug/L		100.0		34	21.2-120		
Bis(2-chloroethyl) ether	33.7	ug/L		50.00		67	47.6-120		
2-Chlorophenol	67.3	ug/L		100.0		67	49.5-120		
1,3-Dichlorobenzene	28.1	ug/L		50.00		56	38.4-120		
1,4-Dichlorobenzene	27.1	ug/L		50.00		54	38.8-120		
1,2-Dichlorobenzene	28.7	ug/L		50.00		57	41.8-120		

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221809 - EPA 625/8270 - EPA 625									
LCS (B221809-BS1)				Prepared: 01/14/22 Analyzed: 01/17/22					
Bis(2-chloroisopropyl) ether	32.7	ug/L		50.00		65	48.5-120		
N-Nitrosodi-n-propylamine	36.7	ug/L		50.00		73	56-120		
Hexachloroethane	26.3	ug/L		50.00		53	35.9-120		
Nitrobenzene	34.6	ug/L		50.00		69	48.4-120		
Isophorone	35.1	ug/L		50.00		70	56.1-120		
2-Nitrophenol	73.8	ug/L		100.0		74	53-120		
2,4-Dimethylphenol	65.8	ug/L		100.0		66	44.4-120		
Bis(2-chloroethoxy) methane	35.4	ug/L		50.00		71	52.4-120		
2,4-Dichlorophenol	72.1	ug/L		100.0		72	55.6-120		
1,2,4-Trichlorobenzene	29.9	ug/L		50.00		60	41.8-120		
Naphthalene	31.0	ug/L		50.00		62	46.2-120		
Hexachlorobutadiene	28.7	ug/L		50.00		57	38.6-120		
4-Chloro-3-methylphenol	77.9	ug/L		100.0		78	57.3-120		
Hexachlorocyclopentadiene	25.3	ug/L		50.00		51	29.7-120		
2,4,6-Trichlorophenol	78.2	ug/L		100.0		78	57.6-120		
2-Chloronaphthalene	29.8	ug/L		50.00		60	43.2-120		
Dimethyl phthalate	37.5	ug/L		50.00		75	60-120		
2,6-Dinitrotoluene	39.0	ug/L		50.00		78	61.6-120		
Acenaphthylene	32.2	ug/L		50.00		64	48.1-120		
Acenaphthene	36.8	ug/L		50.00		74	54.4-120		
2,4-Dinitrophenol	60.8	ug/L		100.0		61	31.9-120		
4-Nitrophenol	39.9	ug/L		100.0		40	23.1-120		
2,4-Dinitrotoluene	39.6	ug/L		50.00		79	60-120		
Diethyl phthalate	38.6	ug/L		50.00		77	59.8-120		
Fluorene	37.3	ug/L		50.00		75	57.1-120		
4-Chlorophenylphenyl ether	37.8	ug/L		50.00		76	58.4-120		
4,6-Dinitro-2-methylphenol	76.4	ug/L		100.0		76	59.5-120		
N-Nitrosodiphenylamine	33.6	ug/L		50.00		67	56.5-120		
4-Bromophenyl phenyl ether	39.3	ug/L		50.00		79	61.6-120		
Hexachlorobenzene	39.6	ug/L		50.00		79	59.5-120		
Pentachlorophenol	71.2	ug/L		100.0		71	42.4-120		
Phenanthrene	40.1	ug/L		50.00		80	61.2-120		
Anthracene	39.6	ug/L		50.00		79	61.7-120		
Di-n-butyl phthalate	40.9	ug/L		50.00		82	63.5-120		
Fluoranthene	38.1	ug/L		50.00		76	58-120		
Pyrene	40.4	ug/L		50.00		81	56.5-120		
Butyl benzyl phthalate	39.0	ug/L		50.00		78	58.6-120		
Benzo(a)anthracene	37.8	ug/L		50.00		76	57.8-120		
Chrysene	27.5	ug/L		50.00		55	26.3-120		
Bis(2-ethylhexyl) phthalate	37.3	ug/L		50.00		75	57.7-120		
Di-n-octyl phthalate	35.3	ug/L		50.00		71	55-120		
Benzo(b)fluoranthene	35.6	ug/L		50.00		71	31.2-122		
Benzo(k)fluoranthene	38.9	ug/L		50.00		78	34.3-129		

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221809 - EPA 625/8270 - EPA 625									
LCS (B221809-BS1)				Prepared: 01/14/22 Analyzed: 01/17/22					
Benzo(a)pyrene	34.7	ug/L		50.00		69	31.3-122		
Indeno(1,2,3-cd)pyrene	34.9	ug/L		50.00		70	26.7-130		
Dibenzo(a,h)anthracene	38.1	ug/L		50.00		76	21-127		
Benzo(g,h,i)perylene	36.8	ug/L		50.00		74	27.1-128		
Batch B221825 - No Prep - EPA 350.1 REV2									
Calibration Blank (B221825-CCB1)				Prepared & Analyzed: 01/14/22					
Ammonia-N	-0.0257	mg/L							
Calibration Check (B221825-CCV1)				Prepared & Analyzed: 01/14/22					
Ammonia-N	15.9	mg/L		15.00		106	90-110		
Batch B221841 - No Prep - SM 2540 D 1997									
Blank (B221841-BLK1)				Prepared & Analyzed: 01/14/22					
Solids - total suspended solids (TSS)	< 4.0	mg/L							
LCS (B221841-BS1)				Prepared & Analyzed: 01/14/22					
Solids - total suspended solids (TSS)	464	mg/L		500.0		93	77.3-116		
Batch B221845 - 04-No Prep WC - SM 5540C 2000									
Blank (B221845-BLK1)				Prepared & Analyzed: 01/14/22					
Surfactants - MBAS	< 0.10	mg/L							
LCS (B221845-BS1)				Prepared & Analyzed: 01/14/22					
Surfactants - MBAS	1.12	mg/L		1.000		112	80-120		
Batch B221860 - No Prep - SM 5210B 2001									
Blank (B221860-BLK1)				Prepared & Analyzed: 01/14/22					
BOD	< 4.0	mg/L							
LCS (B221860-BS1)				Prepared & Analyzed: 01/14/22					
BOD	304	mg/L	C	198.0		154	84.6-115.4		
Batch B221888 - No Prep - VOA - EPA 624									
Blank (B221888-BLK1)				Prepared & Analyzed: 01/14/22					
1,1,1-Trichloroethane	< 5.0	ug/L							
1,1,2,2-Tetrachloroethane	< 5.0	ug/L							
Bis(chloromethyl) ether	< 10000	ug/L							
1,1,2-Trichloroethane	< 5.0	ug/L							
Dichlorodifluoromethane	< 5.0	ug/L							
1,1-Dichloroethane	< 5.0	ug/L							
1,1-Dichloroethene	< 5.0	ug/L							
Trichlorofluoromethane	< 5.0	ug/L							
1,2-Dichloroethane	< 5.0	ug/L							
1,3-Dichloropropene - Total	< 15	ug/L							
1,2-Dichloropropane	< 5.0	ug/L							

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221888 - No Prep - VOA - EPA 624									
Blank (B221888-BLK1)				Prepared & Analyzed: 01/14/22					
trans-1,2-Dichloroethene	< 5.0	ug/L							
Acrolein	< 50	ug/L							
Acrylonitrile	< 50	ug/L							
Benzene	< 5.0	ug/L							
Bromodichloromethane	< 5.0	ug/L							
Bromoform	< 5.0	ug/L							
Bromomethane	< 10	ug/L							
Carbon tetrachloride	< 5.0	ug/L							
Chlorobenzene	< 5.0	ug/L							
Chloroethane	< 10	ug/L							
Chloroform	< 5.0	ug/L							
Chloromethane	< 10	ug/L							
Dibromochloromethane	< 5.0	ug/L							
trans-1,2-Dichloroethene	< 5.0	ug/L							
Ethylbenzene	< 5.0	ug/L							
Methylene chloride	< 5.0	ug/L							
Tetrachloroethene	< 5.0	ug/L							
Toluene	< 5.0	ug/L							
Trichloroethene	< 5.0	ug/L							
Vinyl chloride	< 5.0	ug/L							
Batch B221949 - No Prep - EPA 1664A									
Blank (B221949-BLK1)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	< 5.0	mg/L							
Blank (B221949-BLK2)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	< 5.0	mg/L							
LCS (B221949-BS1)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	32.5	mg/L		40.00		81	78-114		
LCS (B221949-BS2)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	33.3	mg/L		40.00		83	78-114		
LCS (B221949-BS3)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	32.1	mg/L		40.00		80	78-114		
LCS (B221949-BS4)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	34.1	mg/L		40.00		85	78-114		
LCS (B221949-BS5)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	34.1	mg/L		40.00		85	78-114		
LCS (B221949-BS6)				Prepared & Analyzed: 01/17/22					
Oil & Grease - total	36.8	mg/L		40.00		92	78-114		
Batch B221951 - No Prep - EPA 335.4 REV1									
Blank (B221951-BLK1)				Prepared & Analyzed: 01/17/22					
Cyanide	< 0.0050	mg/L							

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221951 - No Prep - EPA 335.4 REV1									
Blank (B221951-BLK2)				Prepared: 01/17/22 Analyzed: 01/18/22					
Cyanide	< 0.0050	mg/L							
Blank (B221951-BLK3)				Prepared: 01/17/22 Analyzed: 01/18/22					
Cyanide	< 0.0050	mg/L							
LCS (B221951-BS1)				Prepared & Analyzed: 01/17/22					
Cyanide	0.107	mg/L		0.1000		107	90-110		
LCS (B221951-BS2)				Prepared: 01/17/22 Analyzed: 01/18/22					
Cyanide	0.105	mg/L		0.1000		105	90-110		
LCS (B221951-BS3)				Prepared: 01/17/22 Analyzed: 01/18/22					
Cyanide	0.0985	mg/L		0.1000		98	90-110		
Batch B221953 - No Prep - OIA/PAI-DK03 & EPA 351.2 REV 2									
Blank (B221953-BLK1)				Prepared: 01/17/22 Analyzed: 01/19/22					
Total Kjeldahl Nitrogen (TKN)	< 1.0	mg/L							
LCS (B221953-BS1)				Prepared: 01/17/22 Analyzed: 01/19/22					
Total Kjeldahl Nitrogen (TKN)	51.6	mg/L		50.00		103	90-110		
Batch B221959 - No Prep - SM 5220 D 1997									
Blank (B221959-BLK1)				Prepared & Analyzed: 01/17/22					
COD	< 6.0	mg/L							
LCS (B221959-BS1)				Prepared & Analyzed: 01/17/22					
COD	102	mg/L		100.0		102	80-120		
Calibration Blank (B221959-CCB1)				Prepared & Analyzed: 01/17/22					
COD	-0.539	mg/L							
Calibration Blank (B221959-CCB2)				Prepared & Analyzed: 01/17/22					
COD	-0.879	mg/L							
Calibration Check (B221959-CCV1)				Prepared & Analyzed: 01/17/22					
COD	102	mg/L		100.0		102	90-110		
Calibration Check (B221959-CCV2)				Prepared & Analyzed: 01/17/22					
COD	104	mg/L		100.0		104	90-110		
Batch B221965 - IC No Prep - EPA 300.0 REV 2.1									
Calibration Blank (B221965-CCB1)				Prepared & Analyzed: 01/15/22					
Fluoride	0.00	mg/L							
Sulfate	0.0312	mg/L							
Bromide	0.00	mg/L							
Chloride	0.965	mg/L							
Calibration Check (B221965-CCV1)				Prepared & Analyzed: 01/15/22					
Bromide	4.84	mg/L		5.000		97	90-110		
Chloride	4.81	mg/L		5.000		96	90-110		
Sulfate	4.83	mg/L		5.000		97	90-110		
Fluoride	4.94	mg/L		5.000		99	90-110		

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B221996 - No Prep - SM 4500P F 1999									
Blank (B221996-BLK1)				Prepared: 01/17/22 Analyzed: 01/19/22					
Phosphorus - total as P	< 0.10	mg/L							
Blank (B221996-BLK2)				Prepared: 01/17/22 Analyzed: 01/19/22					
Phosphorus - total as P	< 0.10	mg/L							
Blank (B221996-BLK3)				Prepared: 01/17/22 Analyzed: 01/19/22					
Phosphorus - total as P	< 0.10	mg/L							
LCS (B221996-BS1)				Prepared: 01/17/22 Analyzed: 01/19/22					
Phosphorus - total as P	2.05	mg/L					80-120		
LCS (B221996-BS2)				Prepared: 01/17/22 Analyzed: 01/19/22					
Phosphorus - total as P	1.96	mg/L					80-120		
LCS (B221996-BS3)				Prepared: 01/17/22 Analyzed: 01/19/22					
Phosphorus - total as P	1.98	mg/L					80-120		
Batch B222069 - EPA 200.2 R2.8 - EPA 200.8 REV 5.4									
Blank (B222069-BLK1)				Prepared: 01/18/22 Analyzed: 01/21/22					
Aluminum	< 0.010	mg/L							
Antimony	< 0.0030	mg/L							
Arsenic	< 0.0010	mg/L							
Barium	< 0.0010	mg/L							
Beryllium	< 0.0010	mg/L							
Boron	< 0.010	mg/L							
Cadmium	< 0.0010	mg/L							
Chromium	< 0.0040	mg/L							
Cobalt	< 0.0020	mg/L							
Copper	< 0.0030	mg/L							
Iron	< 0.010	mg/L							
Lead	< 0.0010	mg/L							
Magnesium	< 0.10	mg/L							
Manganese	< 0.0010	mg/L							
Molybdenum	< 0.0010	mg/L							
Nickel	< 0.0050	mg/L							
Selenium	< 0.0010	mg/L							
Silver	< 0.0050	mg/L							
Thallium	< 0.0010	mg/L							
Tin	< 0.060	mg/L							
Titanium	< 0.0050	mg/L							
Zinc	< 0.0060	mg/L							
LCS (B222069-BS1)				Prepared: 01/18/22 Analyzed: 01/21/22					
Aluminum	0.496	mg/L		0.5000		99	85-115		
Antimony	0.489	mg/L		0.5000		98	85-115		
Arsenic	0.475	mg/L		0.5000		95	85-115		
Barium	0.491	mg/L		0.5000		98	85-115		
Beryllium	0.489	mg/L		0.5000		98	85-115		
Boron	0.507	mg/L		0.5000		101	85-115		

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B222069 - EPA 200.2 R2.8 - EPA 200.8 REV 5.4									
LCS (B222069-BS1)				Prepared: 01/18/22 Analyzed: 01/20/22					
Cadmium	0.487	mg/L		0.5000		97	85-115		
Chromium	0.480	mg/L		0.5000		96	85-115		
Cobalt	0.484	mg/L		0.5000		97	85-115		
Copper	0.474	mg/L		0.5000		95	85-115		
Iron	0.503	mg/L		0.5000		101	85-115		
Lead	0.477	mg/L		0.5000		95	85-115		
Magnesium	49.9	mg/L		50.00		100	85-115		
Manganese	0.485	mg/L		0.5000		97	85-115		
Molybdenum	0.478	mg/L		0.5000		96	85-115		
Nickel	0.467	mg/L		0.5000		93	85-115		
Selenium	0.484	mg/L		0.5000		97	85-115		
Silver	0.492	mg/L		0.5000		98	85-115		
Thallium	0.474	mg/L		0.5000		95	85-115		
Titanium	0.497	mg/L		0.5000		99	85-115		
Zinc	0.491	mg/L		0.5000		98	85-115		
LCS (B222069-BS2)				Prepared & Analyzed: 01/18/22					
Tin	0.473	mg/L		0.5000		95	85-115		
Batch B222103 - 04-No Prep WC - SM 4500-Cl G									
Blank (B222103-BLK1)				Prepared & Analyzed: 01/18/22					
Chlorine - Total Residual	< 0.10	mg/L	U						
Batch B222127 - No Prep - SM 2320B 1997									
Blank (B222127-BLK1)				Prepared & Analyzed: 01/18/22					
Alkalinity - total as CaCO3	2.50	mg/L							
LCS (B222127-BS1)				Prepared & Analyzed: 01/18/22					
Alkalinity - total as CaCO3	85.0	mg/L		86.40		98	90-110		
Duplicate (B222127-DUP1)	**Sample: FA02034-01**			Prepared & Analyzed: 01/18/22					
Alkalinity - total as CaCO3	87.5	mg/L	M		75.0			15	10
Batch B222198 - EPA 245.1 R3.0 - EPA 245.1 REV3									
Blank (B222198-BLK1)				Prepared & Analyzed: 01/19/22					
Mercury	< 0.00020	mg/L							
LCS (B222198-BS1)				Prepared & Analyzed: 01/19/22					
Mercury	0.00206	mg/L		0.002000		103	85-115		
Batch B222233 - No Prep - EPA 420.4 Rev1									
Blank (B222233-BLK1)				Prepared: 01/19/22 Analyzed: 01/20/22					
Phenolics	< 0.0050	mg/L							
Blank (B222233-BLK2)				Prepared: 01/19/22 Analyzed: 01/20/22					
Phenolics	< 0.0050	mg/L							
Blank (B222233-BLK3)				Prepared: 01/19/22 Analyzed: 01/20/22					

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B222233 - No Prep - EPA 420.4 Rev1									
Blank (B222233-BLK3)				Prepared: 01/19/22 Analyzed: 01/20/22					
Phenolics	< 0.0050	mg/L							
LCS (B222233-BS1)				Prepared: 01/19/22 Analyzed: 01/20/22					
Phenolics	0.104	mg/L		0.1000		104	90-110		
LCS (B222233-BS2)				Prepared: 01/19/22 Analyzed: 01/20/22					
Phenolics	0.103	mg/L		0.1000		103	90-110		
LCS (B222233-BS3)				Prepared: 01/19/22 Analyzed: 01/20/22					
Phenolics	0.0998	mg/L		0.1000		100	90-110		
Batch B222263 - No Prep - SM 5310C 2000									
Calibration Blank (B222263-CCB1)				Prepared & Analyzed: 01/17/22					
Total Organic Carbon (TOC)	0.0610	mg/L							
Calibration Check (B222263-CCV1)				Prepared & Analyzed: 01/17/22					
Total Organic Carbon (TOC)	4.90	mg/L		5.000		98	90-110		
Batch B222287 - No Prep - SM 4500 S2 F 2000									
Calibration Check (B222287-CCV1)				Prepared & Analyzed: 01/19/22					
Sulfide	23.6	mg/L		25.00		94	0-200		
Batch B222332 - EPA 245.1 R3.0 - EPA 245.1 REV3									
Blank (B222332-BLK1)				Prepared & Analyzed: 01/20/22					
Mercury	< 0.00020	mg/L							
LCS (B222332-BS1)				Prepared & Analyzed: 01/20/22					
Mercury	0.00177	mg/L		0.002000		88	85-115		
Matrix Spike (B222332-MS1)	**Sample: FA02034-01**			Prepared & Analyzed: 01/20/22					
Mercury	0.00111	mg/L	Q1	0.002000	ND	56	70-130		
Matrix Spike Dup (B222332-MSD1)	**Sample: FA02034-01**			Prepared & Analyzed: 01/20/22					
Mercury	0.00101	mg/L	Q2	0.002000	ND	50	70-130	9	20
Batch B222384 - Metals filtration - EPA 200.8 REV 5.4									
Blank (B222384-BLK1)				Prepared: 01/20/22 Analyzed: 01/21/22					
Aluminum	< 0.010	mg/L							
Antimony	< 0.0030	mg/L							
Arsenic	< 0.0010	mg/L							
Barium	< 0.0010	mg/L							
Beryllium	< 0.00020	mg/L							
Boron	< 0.0020	mg/L							
Cadmium	< 0.0010	mg/L							
Cobalt	< 0.0020	mg/L							
Copper	< 0.0030	mg/L							
Lead	< 0.0010	mg/L							
Magnesium	< 0.10	mg/L							
Manganese	< 0.0010	mg/L							

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B222384 - Metals filtration - EPA 200.8 REV 5.4									
Blank (B222384-BLK1)				Prepared & Analyzed: 01/20/22					
Molybdenum	< 0.0010	mg/L							
Nickel	< 0.0050	mg/L							
Selenium	< 0.0010	mg/L							
Silver	< 0.0050	mg/L							
Thallium	< 0.0010	mg/L							
Zinc	< 0.0060	mg/L							
LCS (B222384-BS1)				Prepared: 01/20/22 Analyzed: 01/21/22					
Aluminum	0.0496	mg/L		0.05000		99	85-115		
Antimony	0.0499	mg/L		0.05000		100	85-115		
Arsenic	0.0466	mg/L		0.05000		93	85-115		
Barium	0.0479	mg/L		0.05000		96	85-115		
Beryllium	0.0532	mg/L		0.05000		106	85-115		
Boron	0.450	mg/L		0.5000		90	85-115		
Cadmium	0.0470	mg/L		0.05000		94	85-115		
Cobalt	0.0460	mg/L		0.05000		92	85-115		
Copper	0.0464	mg/L		0.05000		93	85-115		
Lead	0.0473	mg/L		0.05000		95	85-115		
Magnesium	5.09	mg/L		5.000		102	85-115		
Manganese	0.0473	mg/L		0.05000		95	85-115		
Molybdenum	0.0459	mg/L		0.05000		92	85-115		
Nickel	0.0456	mg/L		0.05000		91	85-115		
Selenium	0.0470	mg/L		0.05000		94	85-115		
Silver	0.0459	mg/L		0.05000		92	85-115		
Thallium	0.0461	mg/L		0.05000		92	85-115		
Zinc	0.0482	mg/L		0.05000		96	85-115		
Matrix Spike (B222384-MS1)	**Sample: FA02034-01**			Prepared & Analyzed: 01/20/22					
Antimony	0.0485	mg/L		0.05000	ND	97	70-130		
Arsenic	0.0489	mg/L		0.05000	0.00311	92	70-130		
Barium	0.113	mg/L		0.05000	0.0665	94	70-130		
Beryllium	0.0487	mg/L		0.05000	ND	97	70-130		
Boron	2.35	mg/L		0.5000	1.80	111	70-130		
Cadmium	0.0438	mg/L		0.05000	ND	88	70-130		
Cobalt	0.0453	mg/L		0.05000	0.00123	88	70-130		
Copper	0.0465	mg/L		0.05000	0.00427	84	70-130		
Lead	0.0438	mg/L		0.05000	0.000874	86	70-130		
Magnesium	18.1	mg/L		5.000	13.6	91	70-130		
Manganese	0.293	mg/L		0.05000	0.241	103	70-130		
Molybdenum	0.740	mg/L	Q4	0.05000	0.705	70	70-130		
Nickel	0.0459	mg/L		0.05000	0.00349	85	70-130		
Selenium	0.0504	mg/L		0.05000	0.00262	96	70-130		
Silver	0.0389	mg/L		0.05000	ND	78	70-130		
Thallium	0.0423	mg/L		0.05000	ND	85	70-130		
Zinc	0.0524	mg/L		0.05000	0.00953	86	70-130		

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

QC SAMPLE RESULTS

Parameter	Result	Unit	Qual	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B222384 - Metals filtration - EPA 200.8 REV 5.4									
Matrix Spike Dup (B222384-MSD1)	**Sample: FA02034-01**			Prepared & Analyzed: 01/20/22					
Antimony	0.0504	mg/L		0.05000	ND	101	70-130	4	20
Arsenic	0.0510	mg/L		0.05000	0.00311	96	70-130	4	20
Barium	0.116	mg/L		0.05000	0.0665	100	70-130	3	20
Beryllium	0.0484	mg/L		0.05000	ND	97	70-130	0.5	20
Boron	2.32	mg/L		0.5000	1.80	105	70-130	1	20
Cadmium	0.0456	mg/L		0.05000	ND	91	70-130	4	20
Cobalt	0.0472	mg/L		0.05000	0.00123	92	70-130	4	20
Copper	0.0484	mg/L		0.05000	0.00427	88	70-130	4	20
Lead	0.0452	mg/L		0.05000	0.000874	89	70-130	3	20
Magnesium	18.2	mg/L		5.000	13.6	93	70-130	0.6	20
Manganese	0.295	mg/L		0.05000	0.241	108	70-130	0.8	20
Molybdenum	0.739	mg/L	Q4	0.05000	0.705	68	70-130	0.1	20
Nickel	0.0478	mg/L		0.05000	0.00349	89	70-130	4	20
Selenium	0.0526	mg/L		0.05000	0.00262	100	70-130	4	20
Silver	0.0400	mg/L		0.05000	ND	80	70-130	3	20
Thallium	0.0438	mg/L		0.05000	ND	88	70-130	4	20
Zinc	0.0542	mg/L		0.05000	0.00953	89	70-130	3	20
Batch B222459 - Metals filtration - EPA 200.7 REV 4.4									
Blank (B222459-BLK1)				Prepared & Analyzed: 01/21/22					
Iron	< 0.010	mg/L							
Tin	< 0.060	mg/L							
Titanium	< 0.0050	mg/L							
LCS (B222459-BS1)				Prepared & Analyzed: 01/21/22					
Iron	0.536	mg/L		0.5000		107	85-115		
Titanium	0.505	mg/L		0.5000		101	85-115		
LCS (B222459-BS2)				Prepared & Analyzed: 01/21/22					
Tin	0.485	mg/L		0.5000		97	85-115		
Batch B222495 - No Prep - SM 4500SO3 B 2000									
Blank (B222495-BLK1)				Prepared & Analyzed: 01/21/22					
Sulfite	< 2.0	mg/L							
Duplicate (B222495-DUP1)	**Sample: FA02034-01**			Prepared & Analyzed: 01/21/22					
Sulfite	< 2.0	mg/L	H		ND				20

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

NOTES

Specifications regarding method revisions, method modifications, and calculations used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Memos

Dioxin and Methyl Mercury Subcontracted - Reports Attached
Revised Report - added THM total

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

C	The associated blank spike failed to meet the required acceptance criteria.
FP	Per analytical methodology this analyte is a field parameter that must be analyzed at time of sample collection to meet hold time requirements.The sample was analyzed in the laboratory as soon as possible after receipt. Data is to be viewed with caution.
H	Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.
M	Analyte failed to meet the required acceptance criteria for duplicate analysis.
Q1	Matrix Spike failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q2	Matrix Spike Duplicate failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q3	Matrix Spike/Matrix Spike Duplicate both failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
Q4	The matrix spike recovery result is unusable since the analyte concentration in the sample is greater than four times the spike level. The associated blank spike was acceptable.
U	Parameter was analyzed for, but not detected above the reporting limit.

Pace Analytical Services, LLC
2231 W. Altorfer Drive
Peoria, IL 61615
(800)752-6651

Gail J Schindler

Certified by: Gail Schindler, Project Manager

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Gail Schindler
PDC Laboratory, Inc.
2231 West Altorfer Drive
Peoria IL 61615

REPORT OF LABORATORY ANALYSIS FOR TCDD

Report Information:

Pace Project #: 10594494
Sample Receipt Date: 01/15/2022
Client Project #: FA02034
Client Sub PO #: 42
State Cert #: 200011

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 2,3,7,8-TCDD Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed by:

February 02, 2022

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com

Report Prepared Date:
February 2, 2022

Report of Laboratory Analysis

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the result from the analysis performed on one sample submitted by a representative of PDC Laboratories, Inc. The sample was analyzed for the presence or absence of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) using USEPA Method 1613B. The estimated detection limit (EDL) was based on signal-to-noise measurements.

The recovery of the isotopically-labeled TCDD internal standard in the sample extract was 56%. The labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native TCDD was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed as part of our routine quality control procedures. The results show that 2,3,7,8-TCDD was not detected.

Laboratory spike samples were also prepared using clean reference matrix that had been fortified with native standard material. The results show that the spiked native TCDD was recovered at 94-97% with a relative percent difference of 3.1%. These results were within the target ranges for the method. Matrix spikes were not prepared with the sample batch.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management

SUBCONTRACT ORDER
Transfer Chain of Custody

WO# : 10594494

PDC Laboratories

FA02034

10594494

SENDING LABORATORY

PDC Laboratories, Inc.
944 Anglum Road
Hazelwood, MO 63042
(800) 333-3278

RECEIVING LABORATORY

Pace Analytical - Minneapolis
1700 Elm St - Suite 200
Minneapolis, MN 55414
(612) 607-6407

Sample: FA02034-01
Name: OUTFALL 006

Sampled: 01/12/22 08:38
Matrix: Waste Water
Preservative: *** DEFAULT PRESER

Analysis	Due	Expires	Comments
01-Dioxin	01/21/22 16:00	07/11/22 08:38	001

Please email results to Gail Schindler at gschindler@pdclab.com

Date Shipped: 1/14/22 Total # of Containers: 1 Sample Origin (State): IL PO #: 42

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
[signature]	1/14/22 1430	[signature] PACE	1/15/22 930

Sample Temperature Upon Receipt	3.0 °C
Sample(s) Received on Ice	(Y) or N
Proper Bottles Received in Good Condition	(Y) or N
Bottles Filled with Adequate Volume	(Y) or N
Samples Received Within Hold Time	(Y) or N
Date/Time Taken From Sample Bottle	Y or N

Pace Analytical	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 06Jan2022 Page 1 of 1
	Document No.: ENV-FRM-MIN4-0150 Rev.04	Pace Analytical Services – Minneapolis

Sample Condition Upon Receipt

Client Name: PDC Laboratories, Inc.

Project #: **WO# : 10594494**

PM: SCU Due Date: 01/20/22

CLIENT: PDC LAB

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: 1Z 647 296 44 6986 7396 See Exceptions ☐ ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☐ Yes ☒ No

Thermometer: ☒ T1(0461) ☐ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) ☐ 01339252/1710 ☐ 122639816 ☐ 140792808 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☒ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Cooler Temp Read ~~w/temp blank~~:** 3.0 °C

Correction Factor: None **Cooler Temp Corrected ~~w/temp blank~~:** 3.0 °C

Average Corrected Temp (no temp blank only): _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☒ 1 Container

USDA Regulated Soil: (☒ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** MJ 1/15/22

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist ENV-FRM-MIN4-0154 and include with SCUR/COC paperwork.

Location (check one): ☐ Duluth ☒ Minneapolis ☐ Virginia

				COMMENTS:
Chain of Custody Present and Filled Out?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☐ No	☒ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4. If Fecal: ☐ <8 hrs ☐ >8hr, <24 hrs, ☐ >24 hrs
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☒ Yes	☐ No		6. 1/21/22, but COC also specifies "Normal" TAT
Sufficient Volume?	☒ Yes	☐ No		7.
Correct Containers Used?	☒ Yes	☐ No		8.
-Pace Containers Used?	☐ Yes	☒ No		
Containers Intact?	☒ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☒ Water ☐ Soil ☐ Oil ☐ Other-	☒ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: 1 AGU — See Exception ☐ ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☒ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☒ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# — See Exception ☐ ENV-FRM-MIN4-0142
				Res. Chlorine / 0-6 Roll / 0-6 Strip / 0-14 Strip
Headspace in Methyl Mercury Container?	☐ Yes	☐ No	☒ N/A	
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☒ N/A	13. See Exception ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☒ N/A	
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Susan C. Hug **Date:** 01/19/22

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).

Labeled by: WB (1)

Pace Analytical™

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Sample Analysis Results

Client - PDC Laboratory, Inc.

Client's Sample ID	FA02034-01		
Lab Sample ID	10594494001		
Filename	F220201A_15		
Injected By	MS4		
Total Amount Extracted	1020 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/12/2022 08:38
ICAL ID	F220125	Received	01/15/2022 09:30
CCal Filename(s)	F220201A_02	Extracted	01/20/2022 10:10
Method Blank ID	BLANK-95886	Analyzed	02/01/2022 13:30

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND	----	2.9	2,3,7,8-TCDD-13C	2.00	56
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	68

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

R = Recovery outside target range
E = Exceeds calibration range

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKGB		
Lab Sample ID	BLANK-95886	Matrix	Water
Filename	U220125A_11	Dilution	NA
Total Amount Extracted	1030 mL	Extracted	01/20/2022 10:10
ICAL ID	U220123	Analyzed	01/25/2022 15:35
CCal Filename(s)	U220125A_02	Injected By	MS4

Native Isomers	Conc pg/L	EMPC pg/L	EDL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDD	ND	----	0.58	2,3,7,8-TCDD-13C	2.00	72
				Recovery Standard 1,2,3,4-TCDD-13C	2.00	NA
				Cleanup Standard 2,3,7,8-TCDD-37Cl4	0.20	83

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
EDL = Estimated Detection Limit

J = Estimated value
I = Interference present

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-95887		
Filename	U220125A_06	Matrix	Water
Total Amount Extracted	1010 mL	Dilution	NA
ICAL ID	U220123	Extracted	01/20/2022 10:10
CCal Filename	U220125A_02	Analyzed	01/25/2022 11:39
Method Blank ID	BLANK-95886	Injected By	MS4

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDD	10	9.7	7.3	14.6	97
2,3,7,8-TCDD-37Cl4	10	7.0	3.7	15.8	70
2,3,7,8-TCDD-13C	100	67	25.0	141.0	67

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCSD-95888		
Filename	U220125A_07	Matrix	Water
Total Amount Extracted	1030 mL	Dilution	NA
ICAL ID	U220123	Extracted	01/20/2022 10:10
CCal Filename	U220125A_02	Analyzed	01/25/2022 12:26
Method Blank ID	BLANK-95886	Injected By	MS4

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDD	10	9.4	7.3	14.6	94
2,3,7,8-TCDD-37Cl4	10	6.9	3.7	15.8	69
2,3,7,8-TCDD-13C	100	64	25.0	141.0	64

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 1613B

Spike Recovery Relative Percent Difference (RPD) Results

Client	PDC Laboratory, Inc.		
Spike 1 ID	LCS-95887	Spike 2 ID	LCSD-95888
Spike 1 Filename	U220125A_06	Spike 2 Filename	U220125A_07

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDD	97	94	3.1

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

basic laboratory

2218 Railroad Avenue
Redding, California 96001
voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Analytical Report

Report To: PACE ANALYTICAL SERVICES, LLC
944 ANGLUM ROAD
HAZELWOOD, MO 63042
Attention: GAIL SCHINDLER
Project: WASTEWATER MONITORING FA02034

Lab No: 22A0986
Reported: 02/17/22
Phone: 800-333-3278

Included in this report are laboratory results for work order 22A0986, received on 01/27/22. All analyses were performed in strict adherence to our established Quality Manual. Any qualifications or abnormalities are listed in the Notes and Definitions and/or the Case Narrative section of this report. The project Chain of Custody and laboratory sample receipt record are included as attachments to this report.

Sample Results

Description: FA02034-01 OUTFALL 006
Matrix / Type: Wastewater (Grab)
Lab ID: 22A0986-01
Sampled: 01/12/22 08:38
Received: 01/27/22 10:12

Metals - Total

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Methyl Mercury as Mercury	ng/l	0.202		0.017	0.050	EPA 1630	02/16/22	02/15/22	B2B1241 / EDM

basic laboratory
2218 Railroad Avenue
Redding, California 96001
voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Analytical Report

Description: FA02034-02 OUTFALL 10
Matrix / Type: Wastewater (Grab)
Lab ID: 22A0986-02
Sampled: 01/12/22 09:00
Received: 01/27/22 10:12

Metals - Total

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Methyl Mercury as Mercury	ng/l	0.046	J	0.017	0.050	EPA 1630	02/16/22	02/15/22	B2B1241 / EDM

Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Metals - Total **Batch B2B1241 - EPA 1630 Distillation (Modified)**										
Blank										
Methyl Mercury as Mercury	ND	0.050	ng/l							
Blank										
Methyl Mercury as Mercury	ND	0.050	ng/l							
Blank										
Methyl Mercury as Mercury	ND	0.050	ng/l							
LCS										
Methyl Mercury as Mercury	2.21	0.050	ng/l	2.00		110	67-133			
Matrix Spike	Source: 22A0966-01									
Methyl Mercury as Mercury	1.55	0.050	ng/l	1.00	0.408	114	65-135			
Matrix Spike Dup	Source: 22A0966-01									
Methyl Mercury as Mercury	1.61	0.050	ng/l	1.00	0.408	120	65-135	3.51	35	

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). The J flag is equivalent to the DNQ Estimated Concentration flag.
ND	Analyte NOT DETECTED at or above the detection limit
RPD	Relative Percent Difference
MDL	Method Detection Limit
RL	Reporting Limit
* or #	CA-ELAP does not accredit this analyte or method as of December 2020. *(Newly released 2021 FOA tables may include this analyte or method.)*
Note 1	Received Temperature - according to EPA guidelines, samples for most chemistry methods should be held at ≤6 degrees C after collection, including during transportation, unless samples are received on ice and collected on the same day as delivery. Regulating agencies may invalidate results if temperature requirements are not met.
Note 2	According to 40 CFR Part 136 Table II, the following tests should be analyzed in the field within 15 minutes of sampling: pH, chlorine, dissolved oxygen, and sulfite.

basic laboratory

2218 Railroad Avenue
Redding, California 96001
voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Analytical Report

Approved By

I certify that these results meet the requirements of the applicable accreditation standard, and were performed in compliance with the stated analytical methods unless otherwise noted in the qualifications or Case Narrative section of this report.

Approved By: Ricky Jensen

Ricky Jensen, Laboratory Director
Pace Analytical Services LLC - Redding CA
California ELAP Cert #1677

SUBCONTRACT ORDER
Transfer Chain of Custody

22A0986

Pace Analytical Services, LLC

FA02034

22A0986
1

SENDING LABORATORY

PDC Laboratories, Inc.
944 Anglum Road
Hazelwood, MO 63042
(800) 333-3278

RECEIVING LABORATORY

Pace Analytical - Redding CA
2218 Railroad Ave
Redding, CA 96001
(530) 243-7234

Sample: FA02034-01
Name: OUTFALL 006

Sampled: 01/12/22 08:38
Matrix: Waste Water
Preservative: HCl, cool <6

-1

Analysis	Due	Expires	Comments
01-Methyl Mercury	02/01/22 16:00	07/11/22 08:38	

Sample: FA02034-02
Name: OUTFALL 10

Sampled: 01/12/22 09:00
Matrix: Waste Water
Preservative: HCl, cool <6

-2

Analysis	Due	Expires	Comments
01-Methyl Mercury	01/24/22 16:00	07/11/22 09:00	

Please email results to Gail Schindler at gschindler@pdclab.com

Date Shipped: 1/26/22 Total # of Containers: 2 Sample Origin (State): IL PO #: 42

Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
[signature]	1/26/22 1340		
		Pace	1.27.22 10:12

Sample Temperature Upon Receipt ____ °C
Sample(s) Received on Ice Y or N
Proper Bottles Received in Good Condition Y or N
Bottles Filled with Adequate Volume Y or N
Samples Received Within Hold Time Y or N
Date/Time Taken From Sample Bottle Y or N

SAMPLE RECEIPT CHECKLIST

basic

WO NUMBER 22A0986

SHIPPING INFORMATION

Walk-In ☐
Courier ☐
FedEx ☐
UPS ☑
Other ☐

Cooler Present? Yes ☑ No ☐

Samples Received By: PJO Date: 1.27.22

	Yes	No
Samples received on ice?	☑	☐
Samples received the same day collected?	☐	☑

Ice type? ☑ Wet ☐ Blue ☐ Other _____

SAMPLE TEMPERATURES AT RECEIPT Therm. ID (Circle one): Therm-36 Therm-37 ~~Therm-55~~ Other: _____

Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)
-01	4.2	-06		-11		-16	
-02	4.6	-07		-12		-17	
-03		-08		-13		-18	
-04		-09		-14		-19	
-05		-10		-15		-20	

SAMPLE CONDITION AND PROCESSING

Samples Processed and Labeled By: PJO Date: 1.27.22

	Yes	No	NA
Custody seals present?	☐	☐	☑
Samples in proper containers?	☑	☐	
Sample containers damaged?	☐	☑	
Sufficient sample volume for indicated tests?	☑	☐	
Samples received within holding times?	☑	☐	
Are VOA vials free of headspace?	☐	☐	☑
Dechlor. agent labels present (i.e., colilert, TTHMs)?	☐	☐	☑

SAMPLE PRESERVATION NA ☐

	Yes	No	NA
Preserved in the field?	☑	☐	☐
Preserved in the lab?	☐	☑	☐

Lab Preservation Date & Time _____

☐ H2SO4 (ID_____) ☐ HNO3 (ID_____) ☐ NaOH (ID_____)
☐ Other (ID_____) ☐ Other (ID_____) ☐ Other (ID_____)

	Yes	No	NA
H2SO4 preserved samples confirmed to pH <2 (i.e., E350.1, SM5220, SM5310)?	☐	☐	☑
HNO3 preserved samples confirmed to pH <2 (i.e., E200.7, E200.8, 6010)?	☐	☐	☑
NaOH preserved samples confirmed to pH >10 (cyanide) or >9 (sulfide)?	☐	☐	☑
Hexavalent Chromium (DW) preserved samples confirmed to pH >8 & Chlorine <0.1 mg/l?	☐	☐	☑
Hexavalent Chromium (W) preserved samples confirmed to pH 9.3 - 9.7?	☐	☐	☑
Are proper preservation lables present?	☑	☐	☐

By:_____ Meter ID:_____

Preservation checked at Lab? Date & Time NA Test Strip (ID_____)

Preservation and Preservation Checks performed by: _____

COMMENTS, DISCREPANCEIS, ANOMALIES

PDC LABORATORIES, INC.
WWW.PDCLAB.COM

REGULATORY PROGRAM (circle - if applicable)	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT	PROJECT NUMBER	PROJECT LOCATION	PURCHASE ORDER #
AECI - NMPP		New Madrid	
ADDRESS	**PHONE NUMBER**	**E-MAIL**	**DATE SHIPPED**
41 St. Jude Industrial Park			1-12-2022
CITY STATE ZIP	**SAMPLER (PLEASE PRINT)**		**MATRIX TYPES:**
Marston, MO 63866	Kevin Davis		WW-WASTEWATER DW-DRINKING WATER GW-GROUND WATER WWSL-SLUDGE NAS-NON AQUEOUS SOLID LCHT-LEACHATE OIL-OIL SO-SOIL SOL-SOLID
CONTACT PERSON	**SAMPLER'S SIGNATURE**		
Kevin Farmer	Kevin Davis		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # FA02034
LOGGED BY:
CLIENT:
PROJECT:
PROJ. MGR.:
CUSTODY SEAL #:

(2) SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE (CLIENT PROVIDED)	REMARKS
006 Outfall ~~006~~ KD 1-12-22	1-12-22	0838	X		WW	22 ~~23~~ KD 1-12-22		for Permit Renewal
10 Outfall ~~10~~ KD 1-12-22	1-12-22	0900	X		WW	2X KD 1-12-22		for Permit Renewal

CHEMICAL PRESERVATION CODES: 1 – HCL | 2 – H2SO4 | 3 – HNO3 | 4 – NAOH | 5 – NA2S2O3 | 6 – UNPRESERVED | 7 – OTHER

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:
DATE RESULTS NEEDED

(6) *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*
PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Kevin Davis	1-12-2022	10:48 am	[signature]	1/12/22	1400
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 7.3 °C

CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT	
REPORT IS NEEDED	Y OR N

DATE AND TIME TAKEN FROM SAMPLE BOTTLE

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories

FA02034 KEG

SENDING LABORATORY

PDC Laboratories, Inc.
944 Anglum Road
Hazelwood, MO 63042
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, LLC
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: FA02034-01
Name: OUTFALL 006

Sampled: 01/12/22 08:38
Matrix: Waste Water
Preservative: *** DEFAULT PRESER

Analysis	Due	Expires	Comments
01-Dioxin	01/21/22 16:00	07/11/22 08:38	
[redacted]	01/21/22 16:00	07/11/22 08:38	
300.0 Br	01/21/22 16:00	02/09/22 08:38	
300.0 Cl	01/21/22 16:00	02/09/22 08:38	
300.0 F	01/21/22 16:00	02/09/22 08:38	
300.0 SO4	01/21/22 16:00	02/09/22 08:38	
Ag 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
Al 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
Alk	01/21/22 16:00	01/26/22 08:38	
Ammonia-N	01/21/22 16:00	02/09/22 08:38	
As 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
B 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
Ba 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
Be 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
BOD	01/21/22 16:00	01/14/22 08:38	
Cd 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
CN-A	01/21/22 16:00	01/26/22 08:38	
Co 200.8 WW Tot	01/21/22 16:00	07/11/22 08:38	
COD	01/21/22 16:00	02/09/22 08:38	
Cr 6020 Tot	01/21/22 16:00	07/11/22 08:38	
Cu 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
EPA 200.8	01/21/22 16:00	02/09/22 08:38	
Fe 200.7 WWTot	01/21/22 16:00	07/11/22 08:38	
Hg 245.1	01/21/22 16:00	02/09/22 08:38	
M624	01/21/22 16:00	01/26/22 08:38	
M624 Extended	01/21/22 16:00	01/26/22 08:38	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories

FA02034

SENDING LABORATORY

PDC Laboratories, Inc.
944 Anglum Road
Hazelwood, MO 63042
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, LLC
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: FA02034-01
Name: OUTFALL 006

Sampled: 01/12/22 08:38
Matrix: Waste Water
Preservative: Cool <6

Analysis	Due	Expires	Comments
M625	01/21/22 16:00	01/19/22 08:38	
M625 Extended	01/21/22 16:00	01/19/22 08:38	
Mg 200.7 WWTot	01/21/22 16:00	07/11/22 08:38	
Mn 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
Mo 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
Ni 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
NO3 + NO2	01/21/22 16:00	02/09/22 08:38	
O&G SPE	01/21/22 16:00	02/09/22 08:38	
Pb 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
Phenol	01/21/22 16:00	02/09/22 08:38	
PO4 total- P	01/21/22 16:00	02/09/22 08:38	
S2-T	01/21/22 16:00	01/19/22 08:38	
Sb 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
Se 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
Sn 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
SO3	01/21/22 16:00	01/12/22 11:02	
Solids-TSS	01/21/22 16:00	01/19/22 08:38	
Ti 200.7 WWTot	01/21/22 16:00	07/11/22 08:38	
TKN	01/21/22 16:00	02/09/22 08:38	
TKN GD	01/21/22 16:00	02/09/22 08:38	
Tl 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	
TOC	01/21/22 16:00	02/09/22 08:38	
Zn 200.8 WWTot	01/21/22 16:00	07/11/22 08:38	

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories

FA02034

SENDING LABORATORY

PDC Laboratories, Inc.
944 Anglum Road
Hazelwood, MO 63042
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, LLC
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: FA02034-02
Name: OUTFALL 10

Sampled: 01/12/22 09:00
Matrix: Waste Water
Preservative: HCl, cool <6

Analysis	Due	Expires	Comments
01-Methyl Mercury	01/21/22 16:00	07/11/22 09:00	
O&G SPE	01/21/22 16:00	02/09/22 09:00	

Please email results to Gail Schindler at gschindler@pdclab.com

Date Shipped:_____ Total # of Containers: 21 Sample Origin (State): _____ PO #: _____

Turn-Around Time Requested ☐ NORMAL ☐ RUSH Date Results Needed: _____

				Sample Temperature Upon Receipt	1.8 °C
[signature]	1/13/22	[signature]	1/13/22 1050	Sample(s) Received on Ice	(Y) or N
Relinquished By	Date/Time	Received By	Date/Time	Proper Bottles Received in Good Condition	(Y) or N
			1500	Bottles Filled with Adequate Volume	(Y) or N
[signature]	1/13/22 1500	[signature]	01/13/22	Samples Received Within Hold Time	(Y) or N
Relinquished By	Date/Time	Received By	Date/Time	Date/Time Taken From Sample Bottle	Y or (N)

Defintions:

> Cold Start - Unit start from ambient temperature condition. Neglect time for aux boiler perp for start.
> Hot Start - This represents the conditions of a start directly following a unit shutdown.
> Other Cost $ per start - This represents other costs to AECI that are variable by number of starts and are not considered as fixed costs in the budget. Previously this value was determined to be overtime labor.
> Net MWh Generated During Start - These MWhs should take into account station service load prior to start in addition to generator output up to minimum load.
> Time to Full Load - This is the time it takes from first fire to turnover to dispatch. Time from min load to dispatch, if small may be neglected.
> Time to Remain Hot - If the unit is able to remain in a "hot" condition, this is the amount of time it can remain in that condition.
> Time to Go Cold - The amount of time that the start condition of the unit transitions from Hot Start to Cold Start.

NOTES:

> Unit start details: Hot and Cold for Coal and CC units; Normal and Fast start for peakers.
> EOH/start or FFS, fuel use (start and operating fuel), start labor, time to full operation:
    > This input ONLY looks at variable costs directly related to a unit start.
    > All maintenance costs are taken into account in another portion of the COSS/LRFP.
    > All straight time and salary time is included in another portion of the COSS/LRFP.
    > For Combined Cycles "Cold Start" Refers to the unit already being in HSB.
    > For NMPP Hot Start is <48 hours, cold start is >48 hours.

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

Jenny Jones
Senior Environmental Analyst
AECI
2814 S. Golden
P.O. Box 754
Springfield, MO 65801

Re: Addendum to Antidegradation Applicability Review for AECI-New Madrid, MO-0001171, ACT#759, New Madrid County

Dear Jenny Jones:

In accordance with the *Missouri Antidegradation Rule and Implementation Procedure*, your proposed discharge is not subject to an Antidegradation Review. The enclosed Antidegradation Applicability Review summarizes this determination based upon your review request received on July22, 2021. You propose to replace the existing ash sluicing system on Unit 1 with a submerged flight conveyor. This is being done to comply with United States Environmental Protection Agency (EPA) regulations related to coal combustion residuals and effluent limitation guidelines. The proposed alterations to the facility will not result in a new or expanded discharge of pollutants from the facility.

This determination does not supersede any requirements of the operating permit or enforcement actions. Nothing in this review removes any obligations to comply with county or other local ordinances or restrictions.

You may proceed with a submittal updating your application to modify your operating permit. These submittals must reflect the flows, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited.10 CSR 20-6.010 now requires all submittals to include an electronic copy along with a hard paper copy. Typically, this can be accomplished by enclosing a compact disc or other removable electronic media.

Following the department's public notice of a draft Missouri State Operating Permit, the department will review any public notice comments received. If significant comments are made, the project may require another public notice. If no comments are received or

comments are resolved without another public notice, this determination will be considered final.

If you should have questions, please contact me by telephone at (573) 751-7298; by e-mail at john.rustige@dnr.mo.gov; or by mail at the Missouri Department of Natural Resources, Water Protection Program, PO Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

John Rustige, P.E.
Wastewater Engineering Unit Chief

Enclosure

c: Heather Peters, Water Protection Program

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
Engineering Section

Antidegradation Applicability Review

Facility Information

Facility Name: AECI-New Madrid Power Plant Permit #: MO-0001171

County:	New Madrid	UTM Coordinates:	X= 808189 / Y= 4046476
12-Digit HUC:	08010100-0301	Legal Description:	Land Grant 1107, T22N, R14E
EDU*:	MS Alluvial Basin / St. Johns Bayou	EcoRegion:	Mississippi Alluvial Plain

*Ecological Drainage Unit

Characteristics of Impacted Outfalls

Outfall	Design Flow (MGD)	Treatment Level	Effluent type	Distance to Classified Segment (mi)
001	524	see permit	Cooling water, boiler blowdown, condensate, and other small waste streams including submerged flight conveyor, see permit	-0
003	38	settling	Ash settling pond #003	~0

Receiving Waterbody Information

Waterbody Name: Mississippi River (WBID 3152) Class: P

Project Information

Description: The New Madrid Power Plant in Marston, MO is owned and operated by Associated Electric Cooperative, Inc. (AECI). The Plant is a steam electrical power generation facility primarily engaged in the generation of electricity for distribution and sale located on the western bank of the Mississippi River. The Plant is categorized by the Standard Industrial Classification (SIC) # 4911 and North American Industry Classification System (NAICS) # 221112. This facility includes two (2) 615-megawatt coal-fired cyclone burner steam electric generating units (Units 1 & 2). The facility's existing Missouri State Operating Permit (MSOP) became effective on January 1, 2020 and expires on December 31, 2024. An application to modify their operating permit was submitted on May 18, 2021. This facility has nine (9) outfalls and four (4) permitted features, which are further described in the effective MSOP.

PROPOSAL: According to a letter dated July 22, 2021, AECI is proposing to install a submerged flight conveyor to replace the existing sluice system on Unit 1. This is being done to comply with United States Environmental Protection Agency (EPA) regulations related to coal combustion residuals and effluent limitation guidelines. Currently the bottom ash and slag drop into a water-filled slag tank, are quenched and ground, and then pumped (sluiced) to the ash pond for settling treatment and subsequent discharge. The proposed submerged flight conveyor system will quench the bottom ash and slag in an open water bath, with these materials settling to the bottom. The conveyor then will drag these materials out of the bath for dewatering so they can then be transported via conveyor instead of being pumped (or sluiced) as is done with the existing system. This will significantly reduce the overall use of water in the ash management system.

Regarding flows, the existing sluice system requires that water be continuously fed to keep the slag tank cool, and the existing permit authorizes a fifty gallon per minute (50 gpm) wastewater stream that combines with other much larger flows for eventual discharge via Outfall 001. The sluice water waste stream is also authorized in the current operating permit and is permitted at 6,103 gpm through the ash pond for settling and eventual discharge via Outfall 003. The proposed submerged flight conveyor has a maximum design capacity of 3,000 gpm and will be combined with other flows and be discharged via Ourfall 001.

DISCUSSION: The proposed modifications to the New Madrid Power Plant are considered a reconfiguration of existing process flows. These flow changes are very minimal in comparison to the overall permitted flows Outfalls 001 and 003. In addition, with the expected reduction in flows associated with the change to a submerged flight conveyor system, the overall pollutant loading to the Mississippi River is expected to decrease. These changes are necessary to address the requirements of EPA's "Disposal of Coal Combustion Residuals from Electric Utilities" regulation. This rule is intended to improve the safe disposal of these residuals and this change is a necessary step in closing the existing ash pond.

DETERMINATION: The proposed upgrade will not require an antidegradation review according to *Missouri Antidegradation Rule and Implementation Procedure*. The proposed modifications will not result in a new or expanded discharge from the facility. The flows and pollutant loading are expected to be reduced as a result of this project.

Date: July 23, 2021
John Rustige, P.E.

Wastewater Engineering Unit Chief

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Dru Buntin, Director

December 8, 2021

Jenny Jones
Associated Electric Cooperative, Inc.
2814 South Golden
P.O. Box 754
Springfield, MO 65801

Re: Antidegradation Applicability Review for Associated Electric Cooperative, Inc. - New Madrid Power Plant, MO-0001171, ACT#1058, New Madrid County

Dear Jenny Jones:

In accordance with the *Missouri Antidegradation Rule and Implementation Procedure*, your proposed discharge is not subject to an Antidegradation Review. The enclosed Antidegradation Applicability Review summarizes this determination based upon your review request received on September 3, 2021. Associated Electric Cooperative, Inc. (AECI) propose to establish Outfall 010 as a non-contact stormwater outfall for the closed inactive lined ash pond and raw water pond.

This determination does not supersede any requirements of the operating permit or enforcement actions. Nothing in this review removes any obligations to comply with county or other local ordinances or restrictions.

You may proceed with submittal of an application for operating permit modification, an engineering report, and a complete application for a construction permit. These submittals must reflect the design flow, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited. 10 CSR 20-6.010 now requires all submittals to include an electronic copy along with a hard paper copy. Typically, this can be accomplished by enclosing a compact disc or other removable electronic media or email searchable pdf documents to DNR.WPPEngineerSection@dnr.mo.gov .

Following the department's public notice of a draft Missouri State Operating Permit, the department will review any public notice comments received. If significant comments are made, the project may require another public notice. If no comments are received or comments are resolved without another public notice, this determination will be considered final. Following issuance of the construction permit and completion of the actual facility construction, the department will proceed with the issuance of the operating permit.

If you should have questions, please contact Steve Hamm by phone at 573-526-1002, by email at steven.hamm@dnr.mo.gov, or by mail at the Missouri Department of Natural Resources, Water Protection Program, PO Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Cindy LePage

Cindy LePage, P.E., Chief
Engineering Section

CL:sht

Enclosure

c: Steven Putrich, P.E., Haley & Aldrich, Inc.
Pam Hackler, Water Protection Program

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
Engineering Section

Antidegradation Applicability Review

Facility Information

FACILITY NAME: New Madrid Power Plant PERMIT #: MO-00011717

COUNTY: New Madrid UTM COORDINATES: X = 808646 / Y = 4045266

12-DIGIT HUC: 08010100-0301 LEGAL DESCRIPTION: NW¼, SW¼, Section 33, T22N, R14E

EDU*: MS Alluvial Basin/ St. Johns Bayou ECOREGION: Mississippi Alluvial Plain

*Ecological Drainage Unit

Outfall 010 Characteristics

Design Flow (CFS)	Treatment Level	Effluent type	Distance to Classified Segment (mi)
7	No exposure	Stormwater	~ 0.25

Receiving Waterbody Information

WATERBODY NAME: Mississippi River CLASS: P

Project Information

DESCRIPTION: According to a letter dated August 25, 2021, Associated Electrical Cooperative, Inc. (AECI) is seeking to establish Outfall 010 as a stormwater outfall that will discharge no contact stormwater from the Closed Inactive Lined Ash Pond (ILAP) and the Raw Water Pond (RWP)

PROPOSAL: The applicant proposes to establish Outfall 010 as a no-contact stormwater outfall on the current effective operating permit for New Madrid Power Plant, MO-0001171. The outfall will discharge no contact stormwater from the ILAP and RWP.

DISCUSSION: Outfall 003 currently receives water from the RWP and the ILAP. Review of Discharge Monitoring Report for Outfall 003 for the past 5 years shows only a single effluent limit exceedance for Oil and Grease in October of 2019. The ILAP completed closure in January 2021 in accordance with 40 CFR 257.102. This closure included the grading of existing Coal Combustion Residuals (CCR) for subgrade elevations, the installation of geomembrane, cover soils, and the establishment of vegetation. A compliance website is maintained by AECI that describes the closure plan and CCR closure related activities. The RWP has been used as a raw water source and has had well water pumped into the basin periodically to make the RWP more habitable for a fish population. The facility no longer adds supplemental well water to the Raw Water Pond. No treatment is anticipated for this discharge other than settling incidental to the pond residence time.

DETERMINATION: The proposed upgrade will not require an antidegradation review according to *Missouri Antidegradation Rule and Implementation Procedure* since the proposed discharge involves no contact stormwater only. Stormwater benchmarks will be established for Outfall 010 during the operating permit modification process.

The applicant should proceed with submitting an operating permit modification application and a construction permit application that includes an engineering report, construction plans, and construction specifications. This construction activity may qualify for a construction permit exemption listed in 10 CSR 20-6.010(5)(B) depending on the scope of construction. If a construction permit exemption is applicable, then an operating permit modification application will only be necessary.

Reviewer: Steve Hamm, P.E.
Date: December 2021
Unit Chief: John Rustige, P.E.