STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

UNDERGROUND INJECTION CONTROL
MISSOURI STATE OPERATING PERMIT

Permit No.	UI-0000044
Owner:	Union Electric Company d/b/a Ameren Missouri
Address:	1901 Chouteau Ave. P.O. Box 66149, MC 602, St. Louis MO 63166
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Ameren Missouri - Sioux Energy Center
Facility Address:	8501 North State Route 94, West Alton, MO 63386-1009
Legal Description:	Landgrant 1838; St. Charles County
UTM Coordinates:	X = 735342, Y = 4311146
Receiving Stream:	n/a underground injection
First Classified Waterbody:	groundwater and Mississippi River (P) WBID #3700
USGS Basin & Sub-watershed No.:	City of Alton–Ms Rvr; 07140101-0904 and Marias Temps Clair–Ms Rvr; 07110009-0401

is authorized to operate the facility described herein, in accordance with the requirements as set forth herein:

FACILITY DESCRIPTION

Pumping from a single or multiple wells from the Mississippi River alluvium with ex-situ treatment (aeration, pH reduction, addition of FeCl3, pH increase, flocculation/settling, sand filtration, resin filtration) and injection into same geologic groundwater formation utilizing a single or multiple injection wells. SIC # 4911; NAICS # 221112, Ameren Missouri - Sioux Energy Center is a steam electric power generating facility primarily engaged in the generation of electricity for distribution and sale. Treatment system filter sludge and treatment wastes are containerized and disposed off-site.
This permit is co-located with MO-0000353.
Injection Design Flow: 0.05 MGD (45 gpm)

In compliance with the Safe Drinking Water Act and authorized by 40 CFR 147 Subpart AA, this permit authorizes only underground injection activities; it does not apply to other regulated areas.

December 1, 2021
Effective Date

November 30, 2026
Expiration Date

Chris Wieberg, Director, Water Protection Program

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

UIC REQUIREMENTS	TABLE A-1 FINAL INJECTION LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to inject treated water as specified. The final injection limitations shall become effective on **December 1, 2021** and remain in effect until expiration of the permit. Injection 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	*		*	once/month	24 hr. total
CONVENTIONAL						
pH †	SU	6.0 to 9.0		-	once/month	grab
METALS						
Antimony, Total Recoverable	µg/L	*		6.0	once/month	grab
Arsenic, Total Recoverable	µg/L	*		10	once/month	grab
Barium, Total Recoverable	µg/L	*		2000	once/month	grab
Boron, Total Recoverable	µg/L	*		2000	once/month	grab
Lead, Total Recoverable	µg/L	*		15	once/month	grab
Molybdenum, Total Recoverable	µg/L	*		*	once/month	grab
Selenium, Total Recoverable	µg/L	*		50	once/month	grab
OTHER						
Sulfate	mg/L	*		250	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JANUARY 28, 2022.

* Monitoring and reporting requirement only

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

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. SPECIAL CONDITIONS

1. This permit authorizes and allows only the injection of water which has been treated, reconditioned, and cleaned to the limitations in this permit utilizing the XDD system as provided for in the application for this operating permit. No other operations are covered. This permit does not authorize injection of waste, wastewater, or solids classified as hazardous in accordance with 40 CFR 261, or not in compliance with the permit.

2. Well Requirements:
   (a) Well drillers must hold a non-restricted permit and must be registered in accordance with 10 CSR 23-1.090 in Missouri, be current, and in good standing.
   (b) All wells must be registered with Wellhead Protection 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, and when the status of a well changes (including closure).
   (c) All wells must be closed in accordance with 10 CSR 23-4.080.

C. SPECIAL CONDITIONS (CONTINUED)

3. Injection wells must be placed between the coal combustion residual waste mass and the alluvial monitoring wells.

4. Spills, Overflows, and Other Unauthorized Discharges.
Any spill, overflow, or other discharge(s) causing any contaminants to enter waters of the state is not authorized and 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.

5. Electronic Discharge Monitoring Report (eDMR) Submission System. Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit), shall be submitted via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data for the NPDES program. The eDMR system is currently the only Department-approved reporting method for this permit unless specified elsewhere in this permit, or a waiver is granted by the Department. The facility must register in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due.

6. 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 to prevent the contamination of stormwater from these substances.
   (b) Ensure adequate provisions are provided to protect embankments from erosion. Ensure drill rig ruts or marks on the ground surface do not contribute to solids in stormwater runoff which would cause a general criteria violation per 10 CSR 20-7.031(4).
   (c) Provide collection facilities and arrange for proper disposal of waste products.
   (d) Store all additives, waste products, 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.

7. 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 for permit shield, and the CWA §402(k) for toxic substances. 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 CWA §§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 already limited in the permit. This permit may be modified, revoked and reissued, or terminated for cause, including determination new pollutants found in the discharge not identified in the application for the new or revised permit. The filing of a request by the facility for a permit modification, termination, notice of planned changes, or anticipated non-compliance does not stay any permit condition.

8. Report "operational shutdown" when injection does not occur during the entire reporting period.

9. The Department may require sampling and reporting as a result of illegal discharges from the site, compliance issues related to water quality concerns or BMP effectiveness, or evidence of off-site impacts from activities or discharges at the facility. If such an action is needed, the Department will specify in writing the sampling requirements, including such information as location and extent.

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

11. This permit does not cover land disturbance activities.

12. This permit does not allow stream channel or wetland alterations unless approved by Clean Water Act §404 permitting authorities.

13. This permit does not authorize in-stream treatment, 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.

C. SPECIAL CONDITIONS (CONTINUED)

14. All records required by this permit may be maintained electronically per 432.255 RSMo. These records should be maintained in a searchable format.

15. Changes in Discharges of Toxic Pollutants. The permittee must notify the Department that any activity has occurred or will occur which would result in any discharge to the subsurface, any pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    (a) Five hundred micrograms per liter (500 µg/l) of any pollutant not considered in the application;
    (b) One milligram per liter (1 mg/l) for antimony;
    (c) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).
    (d) The level established by this permit in accordance with 40 CFR 122.44(f) in Table A-1 of the permit and:
        (1) Beryllium, total; the facility will notify the Department if upon testing the post-treatment effluent prior to injection for beryllium, the value is above 4 µg/L.
        (2) Lithium, total; the facility will notify the Department upon testing the post-treatment effluent prior to injection for lithium if the value is above 40 µg/L.
        (3) Mercury, total; the facility will notify the Department upon testing the post-treatment effluent prior to injection for mercury if the value is above 2 µg/L.

16. Reporting of Non-Detects.
    (a) Compliance analysis conducted by the permittee or any contracted laboratory shall be conducted in such a way the precision and accuracy of the analyzed result can be enumerated. See sufficiently sensitive test method requirements in Standard Conditions Part I, Section A, #4 regarding proper testing and detection limits used for sample analysis. For the purposes of this permit, the definitions in 40 CFR 136 apply; method detection limit (MDL) and laboratory established reporting limit (RL) are used interchangeably in this permit.
    (b) The permittee shall not report a sample result as "non-detect" without also reporting the MDL. Reporting "non-detect" without also including the MDL will be considered failure to report, which is a violation of this permit.
    (c) For the daily maximum, the permittee shall report the highest value; if the highest value was a non-detect, use the less than "<" symbol and the laboratory's highest method detection limit (MDL) or the highest reporting limit (RL); whichever is higher (e.g. <6).
    (d) When calculating monthly averages, zero shall be used in place of any value(s) not detected. Where all data used in the average are below the MDL or RL, the highest MDL or RL shall be reported as "<#" for the average as indicated in item (c).

17. Renewal Application Requirements.
    (a) This facility shall submit an appropriate and complete application to the Department no less than 180 days from the expiration date listed on page 1 of the permit.
    (b) The facility may use the electronic submission system to submit the application to the Program, if available.
    (c) This facility must submit all groundwater monitoring data collected for the term of this permit at the Sioux site regardless of coverage under this permit.
    (d) The facility must submit analytical results post treatment for total beryllium, total lithium, and total mercury upon permit renewal in addition to other pollutants of concern.

18. This permit does not authorize the facility to accept, treat, or discharge wastewater from other sources unless explicitly authorized herein. If the facility would like to accept, treat, or discharge wastewater from another activity or facility, the permit must be modified to include external wastewater pollutant sources in the permit.

19. Any discharges (or qualified activities such as land application) not expressly authorized in this permit, and not clearly disclosed in the permit application, cannot become authorized or shielded from liability under CWA section 402(k) or Section 644.051.16, RSMo, by disclosure to EPA, state, or local authorities after issuance of this permit via any means, including any other permit applications, funding applications, the SWPPP, discharge monitoring reporting, or during an inspection. Submit a permit modification application, as well as an antidegradation determination if appropriate, to request authorization of new or expanded discharges.

D. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to Sections 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: https://ahc.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR UIC
OF
UI-0000044
AMEREN MISSOURI - SIOUX UNDERGROUND INJECTION

Pursuant to 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.

This permit is issued under the authority of the Save Drinking Water Act, authorized by the EPA for State of Missouri administration at 40 CFR 147.1301 which incorporates portions of RSMo 644, 10 CSR 20-6, and 10 CSR 20-7 by reference. Additional regulations are incorporated and listed within.

PART I. FACILITY INFORMATION

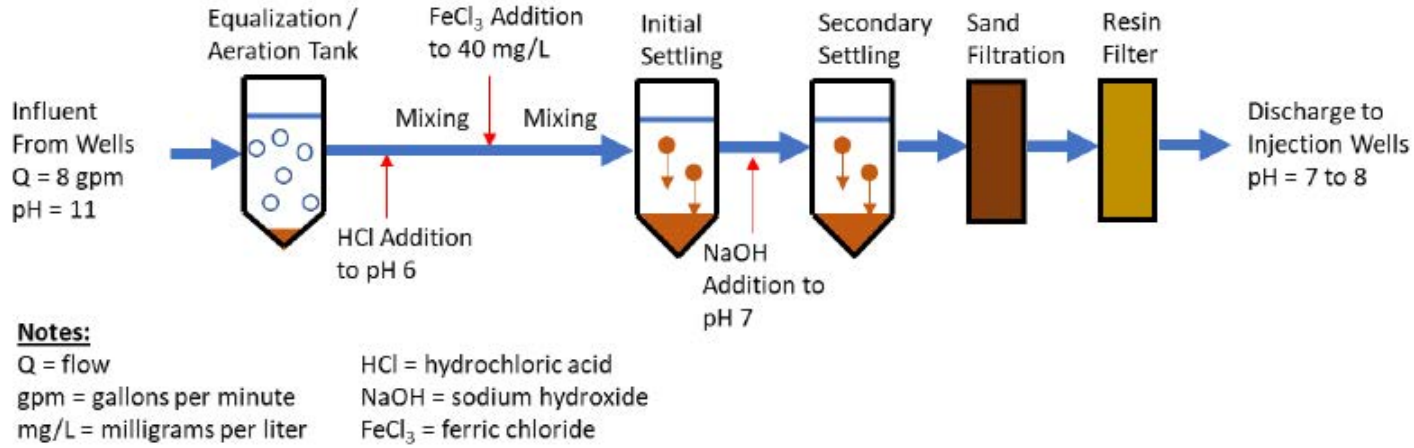
Facility Type:	Industrial: underground injection; <1 MGD
SIC Code(s):	4911
NAICS Code(s):	221112
Application Date:	04/28/2020
Expiration Date:	n/a new permit
Last Inspection:	n/a new permit

FACILITY DESCRIPTION:
The purpose of this permit is to extract from the alluvium, clean in an ex-situ treatment plant, and inject cleaned groundwater back in to the alluvium to protect for 1) groundwater quality, and 2) the quality of groundwater which is discharged subsurface through the alluvium into the Mississippi River.

Extracted waters will be processed in an above-grade structure designed by XDD using the following treatment train:

1) Aeration
2) pH adjustment (reduction to ~6.0 using HCL)
3) Addition of FeCl3 at 40 mg/L
4) Flocculation and settling
5) pH adjustment (increase to ~7.0 using NaOH)
6) Flocculation and settling
7) Sand filtration
8) Resin filtration

The following is a graphical illustration of the process:



Precipitant sludges containing the metals will be removed as necessary in secondary containers and processed onsite for transport and disposal offsite. Backwash fluids generated from the sand filters will be redirected to the initial settling tank for additional processing and settlement. Regeneration waste from the resin filtration system will be neutralized as part of the regeneration process and contained in secondary containers for offsite disposal. All generated waste will be handled, transported and disposed in accordance with all applicable state and federal regulations. Based upon results from the treatability studies, hazardous waste is not expected to be generated during this process. After treatment, the water will be injected into the Mississippi River alluvium subsurface through the

injection wells. This permit does not limit the number of withdrawal or injection wells. The purpose of this permit is to ensure the facility can remediate the groundwater at the site.

BUSINESS REGISTRATION:
The charter number for the continuing authority for this facility is 00040441; this number was verified by the permit writer to be associated with the facility after confirming the appropriate continuing authority is Union Electric.

PERMITS HELD:
In accordance with 40 CFR 122.21(f)(6), the Department evaluated other permits currently held by this facility. This facility is co-located with MO-0000353; the terms and conditions of MO-0000353 may cover certain areas of the UIC area as well. The facility must adhere to the more stringent of the two permits if conflicting information is presented.

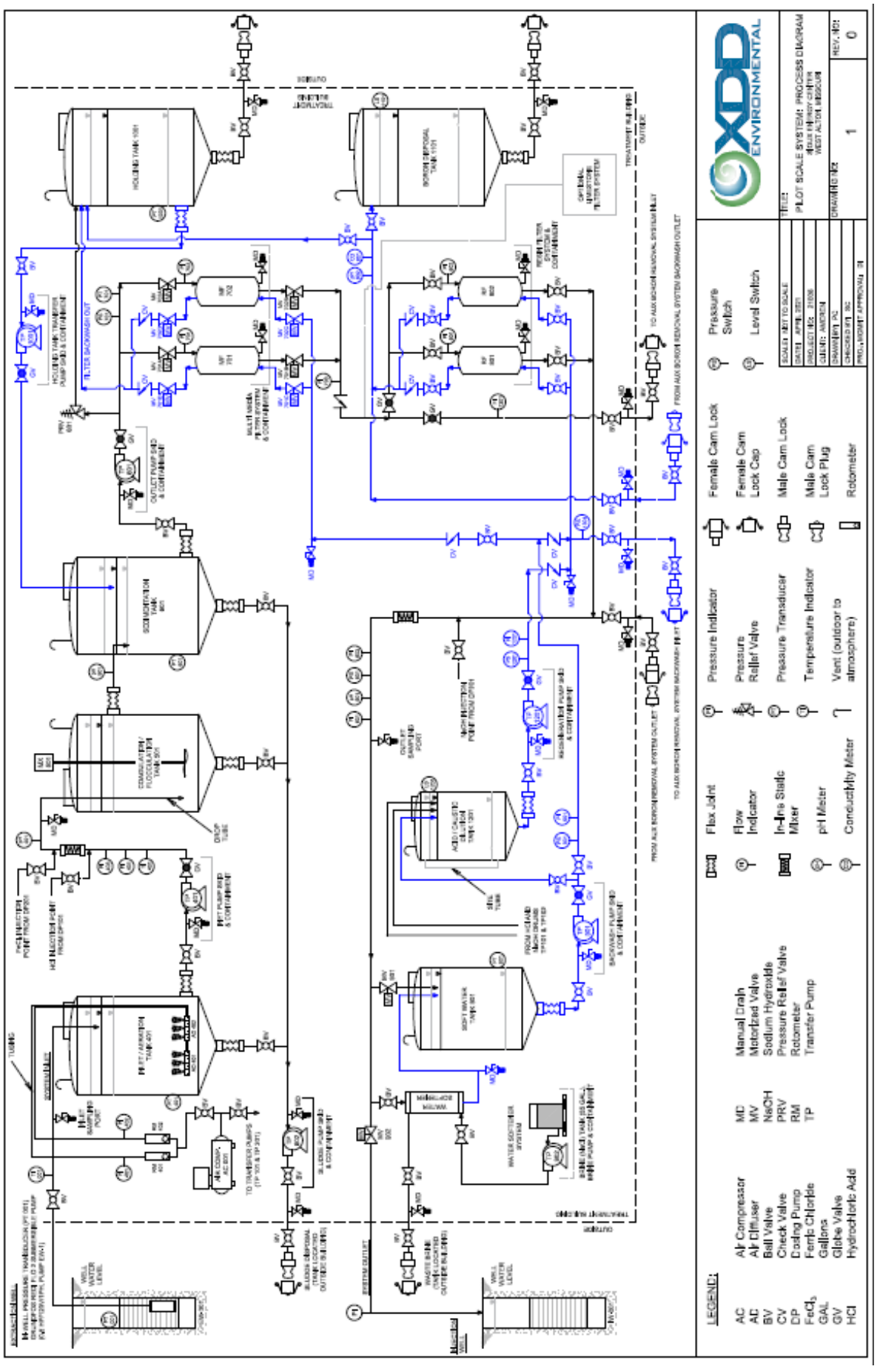
COMMENTS:
This is a new facility; some data was submitted with the application which was reviewed. Permit decisions were based solely on the application materials and institutional knowledge of coal combustion residual impoundment leachate characteristics. While the applicant is proposing only a limited scale project currently, this UIC permit allows for the compliant injection overall at the site. Per 10 CSR 20-7.031(7) Effluent Limitations for Subsurface Waters. (A) No person shall release any water into aquifers, store or dispose of water in a way which causes or permits it to enter aquifers either directly or indirectly unless it meets the requirements of … appropriate groundwater protection criteria set in 10 CSR 20-7.031, Table A. Additionally, per 10 CSR 20-7.031(6) Groundwater. (A) Water contaminants shall not cause or contribute to exceedance of Table A1, groundwater limits in aquifers and caves. Table A1 values listed as health advisory levels shall be used in establishing management strategies and groundwater cleanup criteria, until additional data becomes available to support alternative criteria or other standards are established. Substances not listed in Table A1 shall be limited so that drinking water, livestock watering, and irrigation uses are protected.

FACILITY MAP:

INITIAL WELL LAYOUT:

As observed on the diagram below, the monitoring wells to determine the scope of pollution are positioned between the surface impoundment, treatment injection, and the Mississippi River, thus preventing contaminants from migrating off site. Pumping, treating and reinjection of cleaned groundwater is expected to decrease time of natural attenuation of the groundwater contaminants.

TREATMENT DIAGRAM:



PART II. RECEIVING WATERBODY INFORMATION

RECEIVING WATERBODY TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES	DISTANCE TO SEGMENT	12-DIGIT HUC
UIC	Groundwater	n/a	n/a	GEN, GRW, DWS, LWP, IRR,	0.0 mi	City of Alton–Mississippi River; 07140101-0904 and Marias Temps Clair–Mississippi River; 07110009-0401
UIC	Mississippi River	P	3700	AQL, GEN, DWS, HHP, IRR, LWP, SCR, WBC-A	0.1 mi	

Classes are representations of hydrologic flow volume or lake basin size 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 100K Extant-Remaining Streams 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.

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-B3 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 included 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, includes aquifers per 10 CSR 20-7.031(6)(A);
LWW = Livestock and Wildlife Watering (current narrative use is defined as LWP = Livestock and Wildlife Protection), includes aquifers per 10 CSR 20-7.031(6)(A);
DWS = Drinking Water Supply, includes aquifers per 10 CSR 20-7.031(6)(A);
IND = industrial water supply
10 CSR 20-7.031(1)(C)8. to 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 20-7.015(7) and 10 CSR 20-7.031(6): **GRW** = Groundwater
10 CSR 20-7.031(4): **GEN** = general criteria; acute toxicity criteria applicable to all waters even those lacking designated uses
n/a = not applicable

EXISTING WATER QUALITY:
Groundwater data is required to be posted by Ameren online per 40 CFR 257. The information can be found by using a web browser https://www.ameren.com/company/environment-and-sustainability/managing-coal-combustion

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

✓ Applicable; the Mississippi River is listed on the 2014 Missouri 303(d) list for E coli. This facility is not considered a source of the above listed pollutant(s) or considered to contribute to the impairment.

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/

✓ Not applicable; this facility does not discharge to a waterbody/watershed with a TMDL.

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 is on the 303(d) list; see above.

DESIGNATION OF WATERS OF THE STATE:
Per Missouri's technology-based effluent regulations [10 CSR 20-7.015], waters of the state are divided into seven categories per 10 CSR 20-7.015(1)(B) 1. through 7. and implemented in 10 CSR 20-7.015(2) through (8). Considerations are made for the facility type, and may not be applicable under the implementing regulations. Rather, effluent limitations may be based on a best professional judgment evaluation, which takes the designation and uses of the receiving water body into consideration. Effluent limitation derivations are discussed in PART IV: EFFLUENTS LIMITS DETERMINATIONS.
- ✓ Subsurface Water (including underground injection control permits)

NUTRIENT CRITERIA:
Water quality standards per 10 CSR 20-7.031(5)(N) describe nutrient criteria requirements assigned to lakes (which include reservoirs) in Missouri, equal to or greater than 10 acres during normal pool conditions. The Department's Nutrient Criteria Implementation Plan (NCIP) may be reviewed at: https://dnr.mo.gov/env/wpp/rules/documents/nutrient-implementation-plan-final-072618.pdf Discharges of wastewater in to lakes or lake watersheds designated as L1 (drinking water use) are prohibited per 10 CSR 20-7.015(3)(C).
- ✓ Not applicable; this facility does not discharge in a lake watershed or the lake is less than 10 acres.

RECEIVING WATERBODY MONITORING REQUIREMENTS:
This facility is monitoring the groundwater outside of the injection boundary to assure pollutants are not migrating off site.

MIXING CONSIDERATIONS:
Not applicable, groundwater limits must be met at 10 feet below grade per 10 CSR 20-7.015(7).

PART III. RATIONALE AND DERIVATION OF PERMIT CONDITIONS

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.
- ✓ New permit, backsliding does not apply.

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; new, sub surface discharge. The issuance of this permit conforms to the implementing procedures of the antidegradation regulations. No schedule of compliance can be afforded as the treatment devices must be designed and controlled as to immediately meet all water quality standards.

BEST MANAGEMENT PRACTICES:
Minimum site-wide best management practices are established in this permit to ensure 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).

COST ANALYSIS FOR COMPLIANCE (CAFCOM):
Pursuant to Section 644.145, RSMo, when incorporating a new requirement for discharges from publicly owned facilities, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned facility, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits not including new requirements may be deemed affordable.

✓ The Department is not required to complete a cost analysis for compliance because the facility is not publicly owned.

CHANGES IN DISCHARGES OF TOXIC POLLUTANT:
This special condition reiterates the federal rules found in 40 CFR 122.44(f) for technology treatments and 122.42(a)(1) for all other toxic substances. 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 listed in 40 CFR 401.15 and any other toxic parameter the Department determines is applicable for reporting under these rules in the permit. The facility should also consider any other toxic pollutant in the discharge as reportable under this condition and must report all increases to the Department as soon as discovered in the effluent. The Department may open the permit to implement any required effluent limits pursuant to CWA §402(k) where sufficient data was not supplied within the application but was supplied at a later date by either the permittee or other resource determined to be representative of the discharge, such as sampling by Department personnel.

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.

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. 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.
✓ Not applicable; conditions for domestic wastewater are not included under this permit. The co-located permit, MO-0000353 has domestic wastewater requirements.

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 operating permit does not implement an ELG. However, this facility type has an effluent limitation guideline applied to surface discharges covered under MO-0000353. Additionally, 40 CFR 423.15(b)(16) was used as a guide for leachate characteristics.

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 ensure data entry is being completed appropriately.

- ✓ The EDMR system now currently may include permits beginning with "UI". The facility is required to be enrolled in the eDMR system to comply with the above regulations. See eDMR special condition.

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, RSMo 644.076.1, 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. See Part IV for specific determinations.

GROUNDWATER MONITORING:
Groundwater is a water of the state according to RSMo 644.016(27), is subject to regulations at 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6), and must be protected accordingly.

- ✓ This facility is monitoring the groundwater at the site to determine efficacy of the removal system. Data for the groundwater is supplied online by Ameren under 40 CFR 257, and conditions found within MO-0000353. This permit will defer reporting to the other requirements as listed.

LAND APPLICATION:
Land application, or surficial dispersion of wastewater and/or sludge, is performed by facilities to maintain a basin as no-discharge. Requirements for these types of operations are found in 10 CSR 20-6.015; authority to regulate these activities is from RSMo 644.026.

- ✓ Not applicable; this permit does not authorize operation of a surficial land application system to disperse wastewater or sludge.

LAND DISTURBANCE:
Land disturbance, sometimes called construction activities, are actions which cause disturbance of the root layer or soil; these include clearing, grading, and excavating of the land. 40 CFR 122.26(b)(14) and 10 CSR 20-6.200(3) requires permit coverage for these activities. Coverage is not required for facilities when only providing maintenance of original line and grade, hydraulic capacity, or to continue the original purpose of the facility.

- ✓ Not applicable; this permit does not provide coverage for land disturbance activities. The facility may obtain a separate land disturbance permit (MORA) online at https://dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm; MORA permits do not cover disturbance of contaminated soils.

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

- ✓ Not applicable; the withdrawal pumps for this project do not withdraw water from the state in excess of 70 gpm/0.1 MGD; however, this facility is considered a major water user as a whole.

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 per 10 CSR 26-2.010(2) or may be regulated as a petroleum tank.

- ✓ Not applicable; this is a UIC permit not subject to said regulations.

OPERATOR CERTIFICATION REQUIREMENTS:
Operators or supervisors of operations at regulated domestic wastewater treatment facilities shall be certified in accordance with 10 CSR 20-9.020(2) and any other applicable state law or regulation.
✓ Not applicable; this is a UIC permit not subject to said regulations.

PRETREATMENT:
This permit does not regulate pretreatment requirements for facilities discharging to an accepting permitted wastewater treatment facility. If applicable, the receiving entity (the publicly owned treatment works - POTW) is to ensure compliance with any effluent limitation guidelines for pretreatment listed in 40 CFR Subchapter N per 10 CSR 20-6.100. Pretreatment regulations per RSMo 644.016 are limitations on the introduction of pollutants or water contaminants into publicly owned treatment works or facilities.
✓ Not applicable, this facility does not discharge wastewater to a POTW.

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; the permit writer conducted an RPD on applicable parameters within the permit. See Part IV: Effluent Limits Determinations below.
✓ A mathematical RPA was not conducted for this facility given the limited information provided because this is a new permit. 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 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.

SAMPLING FREQUENCY JUSTIFICATION:
This operation is new therefore monthly sampling is required to determine compliance with the operating permit in accordance with Appendix U of Missouri's Water Pollution Control Permit Manual.

SAMPLING TYPE JUSTIFICATION:
The sampling types are representative of the operations and are protective of water quality. Altering effluent should have composite sampling; uniform effluent can have grab samples. Grab samples are appropriate for ex-situ treatment and groundwater monitoring.

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 and 10 CSR 20-7.031(11) providing certain conditions are met. An 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 SOC. Effluent limitations derived per 10 CSR 20-7.015 sections (2) through (8) are technology-based effluent limitations per 10 CSR 20-7.015(9)(A)1. therefore cannot be afforded schedules of compliance per 10 CSR 20-7.031(11)

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. Industrial sludge could also be derived from lagoon dredging or other similar maintenance activities.

✓ Applicable; sludge from the ex-situ treatment system is removed and managed accordingly. 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 10 CSR 20-6.010(8) and 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 requirements dealing with domestic wastewater, domestic sludge, and land application of domestic wastes.

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-only 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), a benchmark, or a monitoring requirement as dictated by site specific conditions, the BMPs in place, the BMPs proposed, past performance of the facility, and the receiving water's current quality.

✓ Not applicable; UIC permits do not require stormwater monitoring per 40 CFR 122.26(b)(14) or 10 CSR 20-6.200. However, stormwater requirements may be applicable to the UIC areas as found under co-located permit MO-0000353.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

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.

✓ Not applicable; this permit does not require stormwater monitoring per 40 CFR 122.26(b)(14); however, co-located permit MO-0000353 requires a SWPPP. The location of this operation may be required to have SWPPP inspections. The facility as a whole will need to decide if operations proceeding require stormwater monitoring.

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 and incorporated within this permit. 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.

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 having the capacity to serve fewer than 20 persons a day are excluded from the UIC requirements (40 CFR 144.81(9)).

✓ Applicable; this is a UIC permit. See additional conditions under Special Conditions and permit derivation of limits under Part IV of the fact sheet.

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 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.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010; definitions], 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.

✓ Not applicable; wasteload allocations were either not calculated or were not based on traditional TSD methods.

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.

WATER QUALITY STANDARD REVISION:
In accordance with section 644.058, RSMo, the Department is required to utilize an evaluation of the environmental and economic impacts of modifications to water quality standards of twenty-five percent or more when making individual site-specific permit decisions.

✓ This operating permit does not contain requirements for a water quality standard changing twenty-five percent or more since the previous operating permit as this is a new permit.

PART IV. EFFLUENT LIMITS DETERMINATIONS

UIC REQUIREMENTS

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL						
FLOW	MGD	*	*	ONCE/MONTH	MONTHLY	24 HR. TOT
CONVENTIONAL						
pH †	SU	6.0 TO 9.0	-	ONCE/MONTH	MONTHLY	GRAB
METALS						
ANTIMONY, TR	µg/L	*	6.0	ONCE/MONTH	MONTHLY	GRAB
ARSENIC, TR	µg/L	*	10	ONCE/MONTH	MONTHLY	GRAB
BARIUM, TR	µg/L	*	2000	ONCE/MONTH	MONTHLY	GRAB
BORON, TR	µg/L	*	2000	ONCE/MONTH	MONTHLY	GRAB
LEAD, TR	µg/L	*	15	ONCE/MONTH	MONTHLY	GRAB
MOLYBDENUM, TR	µg/L	*	*	ONCE/MONTH	MONTHLY	GRAB
SELENIUM, TR	µg/L	*	50	ONCE/MONTH	MONTHLY	GRAB
OTHER						
SULFATE	mg/L	*	250	ONCE/MONTH	MONTHLY	GRAB

* monitoring and reporting requirement only
† report the minimum and maximum pH values; pH is not to be averaged
TR total recoverable

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow
The volume of effluent injected is needed to ensure well integrity, monitoring compliance, and future conditions.

CONVENTIONAL:

pH
6.0 to 9.0 SU. pH adjustment occurs during the treatment of the groundwater. Monitoring is required to determine treatment efficacy. No groundwater standards exist for pH; however technological industrial wastewater standards apply per 10 CSR 20-7.015(9)(I) as a non-domestic wastewater treatment facility.

METALS:
Groundwater quality standards are chronic technology standards therefore the standard is applied as the monthly average; 10 CSR 20-7.015(6) references table A1 in 10 CSR 20-7.031. There is no maximum applied as a daily limit as long as the averages are below the standard for the parameter for the month. Multiple samples may need to be averaged to meet the monthly limit.

Antimony, Total Recoverable
Antimony is a pollutant of concern at the site. The pH adjustment and flocculation process is designed to remove antimony prior to injection. Groundwater quality standards are 6 µg/L which must be met at the end of treatment prior to injection. The facility reported 0.321 µg/L in the groundwater at the site.

Arsenic, Total Recoverable
Arsenic is a pollutant of concern at the site. The pH adjustment and flocculation process is designed to remove arsenic prior to injection. The facility reported 10.6 µg/L in the groundwater at the site. The federal maximum contaminant level (MCL) for arsenic is 10 µg/L.

Barium, Total Recoverable
Barium is a pollutant of concern at the site. The pH adjustment and flocculation process is designed to remove barium prior to injection. Groundwater quality standards are 2000 µg/L which must be met at the end of treatment prior to injection. The facility reported 298 µg/L in the groundwater at the site.

Beryllium
On 7/28/2021, the facility indicated the application value of 0.162 µg/L was an average of non-detects. The laboratory reporting limit for this parameter was 4 µg/L. All samples were non-detects; no sampling requirements are implemented in this permit.

Boron, Total Recoverable
Boron is a pollutant of concern at the site. The resin filtration process is designed to remove boron prior to injection. Groundwater quality standards are 2000 µg/L which must be met at the end of treatment prior to injection. The facility reported 27,460 µg/L in the groundwater at the site.

Lead, Total Recoverable
Lead is a pollutant of concern at the site. The pH adjustment and flocculation process is designed to remove lead prior to injection. Groundwater quality standards are 15 µg/L which must be met at the end of treatment prior to injection. The facility reported 7.73 µg/L in the groundwater at the site.

Molybdenum, Total Recoverable
Molybdenum is a pollutant of concern at the site. The pH adjustment and flocculation process is designed to remove molybdenum prior to injection. There are no Missouri groundwater quality standards for this pollutant, however, 40 CFR 257 limits this pollutant at impoundments to 100 µg/L. The facility reported 6,792 µg/L in the groundwater at the site.

Selenium, Total Recoverable
Selenium is a pollutant of concern at the site. The pH adjustment and flocculation process is designed to remove selenium prior to injection. Groundwater quality standards are 50 µg/L which must be met at the end of treatment prior to injection. The facility reported 98.5 µg/L in the groundwater at the site.

OTHER:

Sulfate
The facility reported 762 mg/L in the application. Sulfate is a known parameter of concern in coal ash, therefore monitoring is required. Groundwater is assumed to have the drinking water use per 10 CSR 20-7.031(6)(A) therefore will be limited at 250 mg/L for injection.

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.

✓ Not applicable; this is a UIC permit and does not discharge to the surface.

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 started August 13, 2021 and ended September 13, 2021.

✓ One comment letter was received. The comments consisted of, generally:

Comment 1. The coal ash should not be left in place.

Response 1. The Department has no authority to require ash removal.

Comment 2. A separate UIC permit is required for groundwater monitoring.

Response 2. UIC permits only cover the injection activity. Groundwater monitoring is covered under the Ameren-Sioux permit MO-0000353.

Comment 3. Require all 40 CFR 257 Subpart D constituents for monitoring.

Response 3. This permit only requires monitoring of constituents expected to be present in the injection water which may cause or contribute to excursions above the applicable (groundwater or drinking water) standards. Molybdenum was chosen as an extra parameter because molybdenum (along with boron) is a main indicator of coal combustion residual leachate.

DATE OF FACT SHEET: SEPTEMBER 29, 2021

COMPLETED BY:
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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.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM WATER POLLUTION BRANCH
P.O. BOX 176, JEFFERSON CITY, MO 65102

FORM UIC – APPLICATION FOR CLASS V PERMIT

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED 04/28/21	FEE SUBMITTED

PART A – DO NOT ATTEMPT TO COMPLETE THIS FORM BEFORE READING THE ACCOMPANYING INSTRUCTIONS.

1.00 ACTION REQUESTED

☐ Con struction Permit Application ☐ Operating Permit Application

2.00 FACILITY INFORMATION

FACILITY NAME	TELEPHONE NUMBER
Ameren Missouri - Sioux Energy Center	314-223-4655
ADDRESS	FAX NUMBER
8501 N. State Rt. 94, West Alton, MO 63386	

2.1 CONSTRUCTION PERMIT NUMBER, IF APPLICABLE

2.2 OPERATING PERMIT NUMBER, IF APPLICABLE UI0000044

2.3 FACILITY LOCATION (ATTACH A 1" = 2000' SCALE USGS TOPOGRAPHIC MAP SHOWING LOCATION)

¼, ¼, Sec. , TOWNSHIP 48 , RANGE 6E , COUNTY St. Charles

3.00 OWNER INFORMATION

OWNER NAME	TELEPHONE NUMBER
Ameren Missouri	314-223-4655
ADDRESS	FAX NUMBER
1901 Chouteau Avenue, St. Louis, Missouri 63103 MC602	

4.00 CONTINUING AUTHORITY INFORMATION

NAME	TELEPHONE NUMBER
Craig Giesmann	314 554-2955
ADDRESS	FAX NUMBER
1901 Chouteau Avenue, P.O Box 66149 St. Louis, Missouri 63166 MC	N/A

5.00 FACILITY CONTACT INFORMATION

NAME	TITLE	TELEPHONE NUMBER
Craig Giesmann	Sr. Manager, Ameren MO Env Svs	314 554-2955

6.00 GENERAL INFORMATION

6.1 BRIEF DESCRIPTION OF PURPOSE OF INJECTION. INCLUDE ANALYSES AND CONCENTRATIONS OF ANY POLLUTANTS TO BE REMEDIATED. (ATTACH A SEPARATE SHEET IF NECESSARY)

See Attached Sheet

6.2 BRIEF DESCRIPTION OF FACILITIES TO ACCOMPLISH INJECTION. ATTACH A SIMPLIFIED GEOLOGIC CROSS SECTION SHOWING DEPTH OF BEDROCK, DEPTH OF AQUIFERS, AND DEPTH OF INJECTION. ALSO ATTACH MATERIAL SAFETY DATA SHEETS FOR EACH OF THE INJECTED MATERIALS. IF INJECTION WELL IS TO BE CASED, PROVIDE SCHEMATIC.

See Attached Sheet

6.3 IF BIOLOGICAL AGENTS ARE TO BE INTRODUCED IN THIS PROCESS, A BIOLOGICAL PROFILE AND LITERATURE RESEARCH MUST BE SUBMITTED WITH THIS APPLICATION.

6.4 WILL THIS PROCESS INVOLVE A HAZARDOUS WASTE AS DEFINED IN 10 CSR 25-4.010?

☐ YES ☑ NO

6.5 WILL THIS PROCESS RESULT IN DISCHARGE TO SURFACE WATER?

☐ YES ☑ NO If yes, an NPDES permit must be obtained.

6.00 GENERAL INFORMATION (CONTINUED)

6.6 HOW MANY TOTAL POUNDS OF CHEMICALS OR BIOLOGIC MATERIALS WILL BE INJECTED?

None

6.7 IF THIS INJECTION IS INTO AN AQUIFER, HOW WILL THE INJECTED CHEMICALS BE WITHDRAWN OR REDUCED TO INJECTION LEVELS?

See Attached Sheet

6.8 IF THE CHEMICALS OR BIOLOGIC AGENTS TO BE INJECTED ARE ALREADY PRESENT IN THE GROUNDWATER, GIVE CONCENTRATIONS:

CHEMICAL/BIOLOGIC AGENT	PRE-INJECTION CONCENTRATION (mg/L)
1. 1.	
2. 2.	
3. 3.	

7.00 OTHER WELL TYPES ON SITE

YES	NO	TYPE	# AT LOCATION	WELL STATUS		
				ACTIVE	INACTIVE PLUGGED	INACTIVE NOT PLUGGED
☐	☑	ABANDONED WATER WELL		☐	☐	☐
☐	☑	AQUIFER RECHARGE WELL		☐	☐	☐
☐	☑	AQUIFER REMEDIATION WELL		☐	☐	☐
☐	☑	AUTOMOBILE SERVICE STATION DISPOSAL WELL		☐	☐	☐
☐	☑	GROUND SOURCE HEAT PUMP (OPEN LOOP)		☐	☐	☐
☐	☑	IMPROVED SINKHOLE		☐	☐	☐
☐	☑	INDUSTRIAL DRAINAGE WELL		☐	☐	☐
☐	☑	MINE BACKFILL WELL		☐	☐	☐
☐	☑	SEPTIC TANK WITH LATERAL FIELD THAT HAS THE POTENTIAL TO BE USED BY MORE THAN 20 PEOPLE PER DAY.		☐	☐	☐
☑	☐	OTHER Groundwater Monitoring Well	varies	☑	☑	☐

7.1 WILL INJECTION WELLS BE CASED?

☐ YES ☑ NO

IF YES, A PERMIT MAY BE REQUIRED FROM THE DIVISION OF GEOLOGY AND LAND SURVEY, P.O. BOX 250, ROLLA, MO 65402-0250 OR CALL (573) 368-2143.

8.00 SIGNATURE INFORMATION

NAME AND OFFICIAL TITLE (TYPE OR PRINT)

Derek Ingram P.E., R.G., P.G., XDD Environmental Midwest Operations Manager, for Ameren

TELEPHONE NUMBER

314-609-3065

SIGNATURE

DATE SIGNED

4/22/21

9.00 DATA

9.1 THIS SECTION MUST BE COMPLETED IF INJECTION IS INTO AN AQUIFER, IT MUST BE COMPLETED PRIOR TO INJECTION, AT LEAST ONE ANALYSIS MUST BE PREFORMED FOR EACH POLLUTANT LISTED. IF INJECTION IS NOT TO AN AQUIFER, SKIP AND GO TO PART 9.2.

POLLUTANT	MAXIMUM DAILY VAULE	
	CONCENTRATION	MASS
Biochemical Oxygen Demand (BOD)		
Chemical Oxygen Demand (COD)	78 mg/L	
Total Organic Carbon (TOC)		
Ammonia as N		
Flow	VALUE NA - taken as aquifer background prior to system operation	
Temperature (winter)	VALUE 15.19	
Temperature (summer)	VALUE 16.89	
pH	MINIMUM 6.65	MAXIMUM 7.94

9.2 MARK "X" IN COLUMN (a) FOR EACH POLLUTANT YOU KNOW OR HAVE REASON TO BELIEVE IS PRESENT. MARK "X" IN COLUMN (b) FOR EACH POLLUTANT YOU BELIEVE TO BE ABSENT. IF YOU MARK COLUMN (a) FOR ANY POLLUTANT, YOU MUST PROVIDE THE RESULTS OF AT LEAST ONE ANALYSIS FOR THAT POLLUTANT. COMPLETE ONE TABLE FOR EACH WELL. SEE THE INSTRUCTIONS FOR ADDITIONAL DETAILS AND REQUIREMENTS.

POLLUTANT AND CAS. NO. (IF AVAILABLE)	MARK "X"		MAXIMUM DAILY VALUE	
	(a) PRESENT	(b) ABSENT	CONCENTRATION	MASS
Bromide (24959-67-9)	☐	☐		
Total Residual Chloine	☐	☐		
Color	☐	☐		
Fecal Coliform	☐	☐		
Floride (16984-48-8)	☐	☐		
Nitrate/Nitrite (as N)	☐	☐		
Nitrogen, Total Organic (as N)	☐	☐		
Oil and Grease	☐	☐		
Total Phosphorus (as P) (7723-14-0)	☐	☐		
Radioactivity	☐	☐		
Alpha, Total	☐	☐		
Beta, Total	☐	☐		
Radium, Total	☐	☐		

9.00 DATA (CONTINUED)				
POLLUTANT AND CAS. NO. (IF AVAILABLE)	MARK "X"		MAXIMUM DAILY VALUE	
	(a) PRESENT	(b) ABSENT	CONCENTRATION	MASS
Sulfate (as SO^4) (14808-79-8)	☑	☐	762 mg/L	
Sulfide (as S)	☐	☐		
Sulfite (as SO^3)	☐	☐		
Surfactants	☐	☐		
Aluminum, Total (7429-90-5)	☐	☐	2,250 ug/L	
Barium, Total (7440-39-3)	☑	☐	298 ug/L	
Boron, Total (740-42-8)	☑	☐	27,460 ug/L	
Cobalt, Total (7440-48-4)	☑	☐	5 ug/L	
Iron, Total (7439-89-6)	☑	☐	14,100 ug/L	
Magnesium, Total (7439-95-4)	☑	☐	50,000 ug/L	
Molybdenum, Total (7439-98-7)	☑	☐	6,792 ug/L	
Manganese, Total (7439-96-5)	☑	☐	1900 ug/L	
Tin, Total (7440-31-5)	☐	☐		
Titanium, Total (7440-32-6)	☐	☐		
METALS, CYANIDE, AND TOTAL PHENOLS				
1M. Antimony, Total (7440-36-0)	☑	☐	0.321 ug/L	
2M. Arsenic, Total (7440-38-2)	☑	☐	10.6 ug/L	
3M. Beryllium, Total (7440-41-7)	☑	☐	0.162 ug/L	
4M. Cadmium, Total (7440-43-9)	☑	☐	2.0 ug/L	
5M. Chromium, Total (7440-47-3)	☑	☐	3.1 ug/L	
6M. Copper, Total (7550-50-8)	☑	☐	10.7 ug/L	
7M. Lead, Total (7439-97-6)	☑	☐	7.73 ug/L	
8M. Mercury, Total (7439-97-6)	☑	☐	0.043 ug/L	
9M. Nickel, Total (7440-02-0)	☑	☐	25 ug/L	
10M. Selenium, Total (7782-49-2)	☑	☐	98.5 ug/L	
11M. Silver, Total (7440-22-4)	☐	☑	<1.0 ug/L	
12M. Thallium, Total (7440-28-0)	☐	☐	<2 ug/L	
13M. Zinc, Total (7440-66-6)	☐	☑	<15 ug/L	
14M. Cyanide, Total (57-12-5)	☐	☐		
15M. Phenols, Total	☐	☐		
GC/MS FRACTION – VOLATILE COMPOUNDS				
1V. Acrolein (107-02-8)	☐	☐		
2V. Acrylonitrite (107-13-1)	☐	☐		
3V. Benzene (71-43-2)	☐	☐		
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐		
5V. Bromoform (75-25-2)	☐	☐		
6V. Carbon Tetracholoride (56-23-5)	☐	☐		
7V. Cholorenzene (108-90-7)	☐	☐		

9.00 DATA (CONTINUED)				
POLLUTANT AND CAS. NO. (IF AVAILABLE)	MARK "X"		MAXIMUM DAILY VALUE	
	(a) PRESENT	(b) ABSENT	CONCENTRATION	MASS
8V. Cholodibromomethane (124-48-1)	☐	☐		
9V. Chloroethane (75-00-3)	☐	☐		
10V. 2-Chloroethylvinyl Ether (110-75-8)	☐	☐		
11V. Chloroform (67-66-3)	☐	☐		
12V. Dichlorobromomethane (75-27-4)	☐	☐		
13V. Dichlorodifluoromethane (75-71-8)	☐	☐		
14V. 1,1 – Dichloroethane (75-34-3)	☐	☐		
15V. 1,2 – Dichloroethane (107-06-2)	☐	☐		
16V. 1,1 – Dichloroethylene (75-35-4)	☐	☐		
17V. 1,2 – Dichloropropane (78-87-5)	☐	☐		
18V. 1,2 – Dichloropropylene (542-75-6)	☐	☐		
19V. Ethylbenzene (100-41-4)	☐	☐		
20V. Methyl Bromide (74-83-9)	☐	☐		
21V. Methyl Chloride (74-87-3)	☐	☐		
22V. Methylene Chloride (75-09-2)	☐	☐		
23V. 1,1,2,2 – Tetrachlorothane (79-35-4)	☐	☐		
24V. Tetrachloroethylene (127-18-4)	☐	☐		
25V. Toluene (106-88-3)	☐	☐		
26V. 1,2 – Trans Dichloroethylene (156-60-5)	☐	☐		
27V. 1,1,1 – Trichloroethane (71-55-6)	☐	☐		
28V. 1,1,2 – Trichloroethane (79-00-5)	☐	☐		
29V. Trichloroethylene (79-01-6)	☐	☐		
30V. Tricholorluoromethane (75-89-4)	☐	☐		
31V. Vinyl Chloride (75-01-4)	☐	☐		
GS/MS FRACTION – ACID COMPOUNDS				
1A. 2 – Chloropheno (95-57-8)	☐	☐		
2A. 2,4 – Dichlorophenol (120-83-2)	☐	☐		
3A. 2,4 – Dimethylphenol (105-67-9)	☐	☐		
4A. 4, 6 – Dinitro – O – Cresol (534-52-1)	☐	☐		
5A. 2,4 – Dinitrophenol (51-28-5)	☐	☐		
6A. 2 – Nitrophenol (88-75-5)	☐	☐		
7A. 4 – Nitrophenol (100-82-7)	☐	☐		
8A. P – Chloro – M – Cresol (59-50-7)	☐	☐		
9A. Pentachlorophenol (87-86-5)	☐	☐		
10A. Phenol (106-95-2)	☐	☐		
11A. 2,4,6 – Trichlorophenol (88-06-2)	☐	☐		

9.00 DATA (CONTINUED)				
POLLUTANT AND CAS. NO. (IF AVAILABLE)	MARK "X"		MAXIMUM DAILY VALUE	
	(a) PRESENT	(b) ABSENT	CONCENTRATION	MASS
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS				
1B. Acenaphthene (83-32-9)	☐	☐		
2B. Acenaphtylene (208-96-8)	☐	☐		
3B. Anthracene (120-12-7)	☐	☐		
4B. Benzidine (92-87-5)	☐	☐		
5B. Benzo (a) Anthracene (56-55-3)	☐	☐		
6B. Benzo (a) Pyrene (50-32-8)	☐	☐		
7B. 3,4 – Benzofluoranthene (205-99-2)	☐	☐		
8B. Benzo (ghi) Perylene (191-24-2)	☐	☐		
9B. Benzo (k) Fluoranthene (207-08-9)	☐	☐		
10B. Bis (2-Chloroethoxy) Methane (111-91-1)	☐	☐		
11B. Bis (2-Chloroethyl) Ether (111-44-4)	☐	☐		
12B. Bis (2-Chloroisopropyl) Ether (39638-32-9)	☐	☐		
13B. Bis (2-Ethylhexyl) Phthalate (117-81-7)	☐	☐		
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐		
15B. Butyl Benzyl Phthalate (85-68-7)	☐	☐		
16B. 2-Chloronaphthalene (91-58-7)	☐	☐		
17B. 4-Chloronaphenyl (7005-72-3)	☐	☐		
18B. Chrysene (218-01-9)	☐	☐		
19B. Dibenzo (a,h) Anthracene (53-70-3)	☐	☐		
20B. 1,2 – Dichlorobenzene (95-50-1)	☐	☐		
21B. 1,3 – Dichlorobenzene (541-73-1)	☐	☐		
22B. 1,4 – Dichlorobenzene (106-46-7)	☐	☐		
23B. 3,3 – Dichlorobenzidine (91-94-1)	☐	☐		
24B. Diethyl Phthalate (84-66-2)	☐	☐		
25B. Dimethyl Phthalate (113-11-3)	☐	☐		
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐		
27B. 2,4 – Dinitrotoluene (121-14-2)	☐	☐		
28B. 2,6 – Dinitrotoluene (606-20-2)	☐	☐		
29B. Di – N – Octyl Phthalate (117-84-0)	☐	☐		
30B. 1,2–Diphenylhydrazine (as Azobenzene) (122-66-7)	☐	☐		
31B. Fluoranthene (206-44-0)	☐	☐		
32B. Fluorene (86-73-7)	☐	☐		
33B. Hexachlorobenzene (118-71-1)	☐	☐		
34B. Hexachlorobutadiene (87-68-3)	☐	☐		
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐		
36B. Hexachloroethane (67-72-1)	☐	☐		
37B. Indeno (1,2,3-c,d) Pyrene (193-39-5)	☐	☐		

9.00 DATA (CONTINUED)				
POLLUTANT AND CAS. NO. (IF AVAILABLE)	MARK "X"		MAXIMUM DAILY VALUE	
	(a) PRESENT	(b) ABSENT	CONCENTRATION	MASS
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (CONTINUED)				
38B. Isophorone (78-59-1)	☐	☐		
39B. Napthalene (91-20-3)	☐	☐		
40B. Nitrobenzene (98-95-3)	☐	☐		
41B. N-Nitrosodimethylamine (62-75-9)	☐	☐		
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐		
43B. N-Nitrosodiphenylamine (83-30-6)	☐	☐		
44B. Phenanthrene (85-01-8)	☐	☐		
45B. Pyrene (129-00-0)	☐	☐		
46B. 1,2,4 – Trichlorobenzene (120-82-1)	☐	☐		
GC/MS FRACTION - PESTICIDES				
1P. Aldrin (309-00-2)	☐	☐		
2P. α-BHC (319-84-6)	☐	☐		
3P. β-BHC (319-85-7)	☐	☐		
4P. χ-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-Endosulfan (115-29-7)	☐	☐		
13P. Endosulfan (1031-07-8)	☐	☐		
14P. Endrin (72-20-8)	☐	☐		
15P. Endrin (7421-93-4)	☐	☐		
16P. Heptachlor (76-44-8)	☐	☐		
17P. Heptachlor Epoxide (1024-57-3)	☐	☐		
18P. PCB-1242 (53469-21-9)	☐	☐		
19P. PCB-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 (12674-29-6)	☐	☐		
25P. Toxaphene (8001-35-2)	☐	☐		
DIOXIN				
2,3,7,8 – Tetrachlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	DESCRIBE RESULTS	

INSTRUCTIONS FOR FORM UIC – APPLICATOIN FOR CLASS V PERMIT

Please read these instructions carefully before completing the application. Send a signed application along with appropriate permit fee to the Water Proteciton Program, Water Pollution Branch, PO Box 176, Jefferson City, MO 65102. Please make your check payable to State of Missouri.

1.0 ACTION REQUESTED

Construction Permit Application – Check only if the application is for a permit to construct an injection/recovery well system.

Operating Permit Application – Check only if the application is for a permit to operate an injection/recovery well system.

Operating Permit Renewal Application – Check only if the application is for a renewal of an existing permit.

2.0 FACILITY INFORMATION

Name – The site-specific name of the facility where the injection/recovery operation is to be conducted.

Address – Physical address of the site-specific facility.

2.1 Construction Permit Number – provide the UIC construction permit number that the injection/recovery system was constructed under, if this application is for an operating permit for the same facility.

2.2 Operating Permit Number – include only the facility's NPDES or UIC permit number(s) if one or more are in effect. If multiple Class V permits are presently in effect, attach a separate list.

2.3 Facility Location – provide location data.

3.0 OWNER INFORMATION

Name the individual, institution, agency or corporation that owns the facility.

4.0 CONTINUING AUTHORITY INFORMATION

Name the permanent organization that will serve as the continuing authority for the operation, maintenance, and modernization of the facility.

5.0 FACILITY CONTACT

Name the individual within the facility, or operator, most able to supply information about the direct operation of the injection/recovery operation.

6.0 GENERAL INFORMATION

6.1 Purpose of injection/recovery – attach separate pages if needed. Include all or portions of an engineering report containing information needed by the owner, continuing authority, and the Department of Natural Resources to fully describe the purpose of the injection/recovery system.

6.2 Description of the injection/recovery process – attach separate pages if needed. Include all or portions of the engineering report required by #2 above, or submit a separate detailed description of all elements or the product, treatment and injection system required to allow the owner, continuing authority or the Department of Natural Resources to adequately review the system.

The geologic report should contain, at a minimum: a description of the injection/recovery well pattern; a description of the injection zone including details of lithology, hydrology, and unique features of the injection zone and relevant formation; injection and recovery timeframes; systems of transporting, storing, mixing, metering, and introducing injection materials; recovery fluid gathering systems, treatment or recycling, and disposal systems.

6.3 Biological Agents – list and describe all biological agents to be injected, including: scientific names; whether or not the agents are native to the formations involved; list of available literature relevant to the use of the agents for the injection operation; their population and nutrient dynamics under proposed operating conditions; discussion and supporting literature regarding potential health and/or environmental impacts of the agents and their metabolites in and downgradient of the injection zone; and after completion of the operation; results of laboratory tests conducted by or for the facility relevant to the injection/recovery operation.

6.4 Hazardous Waste – will the process involve hazardous wastes as defined by federal and state hazardous waste laws?

6.5 Surface Discharge – if needed, contact the Water Protection Program, Water Pollution Branch for a State Operating Permit application at least 180 days prior to any planned discharge.

6.6 Give total estimated amounts of materials to be injected.

6.7 Describe how injected chemicals will be withdrawn to pre-injection levels.

6.8 Provide analytical data on the pre-injection concentrations of substances to be injected, if these substances are already present in the groundwater. Examples: manganese, if potassium permanganate is injected; or BOD, if a biological agent is to be injected.

INSTRUCTIONS FOR FORM UIC – APPLICATION FOR CLASS V PERMIT (CONTINUED)

7.0 OTHER WELL TYPES ON SITE

If there are existing wells already on site, give the type, number at location and status.

8.0 SIGNATURE

The application **must** be signed by a geologist registered in the State of Missouri or other groundwater professional registered in the State of Missouri.

9.0 DATA

9.1 This section must be completed if injection is into an aquifer. It must be completed prior to injection. At least one (1) analysis must be completed for each pollutant listed.

9.2 Mark an "X" for each pollutant believed to be present or absent in groundwater. If present, at least one (1) analysis must be completed for that pollutant.

ADDITIONAL FORMS

To apply for termination of this permit, you must submit a completed Form J. Also attach analyses from samples taken after project completion. These analyses must indicate that concentrations of remediated pollutants have not increased from pre-project concentrations.

Part A

6.1 PILOT TEST DESCRIPTION [BRIEF DESCRIPTION OF PURPOSE OF INJECTION. INCLUDE ANALYSES AND CONCENTRATIONS OF ANY POLLUTANTS TO BE REMEDIATED.]

Groundwater is currently monitored as required by the United States Environmental Protection Agency (USEPA) in 40 CFR Part 257 "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule" (the CCR Rule) and the facility's NPSDES permit (No MO-0000353). Groundwater is analyzed for metals via EPA Methods 200.7 and 200.8, alkalinity via SM Method 2320B, total dissolved solids via SM Method 2450C, ferric and ferrous iron via SM Method 3500, anions via EPA Method 300, and phosphorous via EPA Method 365.4. Based on statistical analysis, elevated levels of molybdenum and boron exceed site-specific groundwater protection standards (GWPS) established under the CCR Rule.

While metals cannot be destroyed, they can be susceptible to treatment and undergo changes in form to become either (a) less soluble; or (b) more sorbent and bind to particle surfaces. Both methods involve the physical removal of metals from the dissolved state (a very mobile state) to either a solid state or an adsorbed state. The three primary approaches for metals removal from groundwater are:

- **Precipitation**: Transformation of a dissolved species to a solid form, which can then settle out of suspension.
- **Co-precipitation with other minerals**: Transformation of a dissolved species to a solid form that combines with another material (such as iron), which can then then settle out of suspension.
- **Adsorption**: Introduction or production of a solid that will absorb the MOC from the groundwater.

Where multiple metals are present, there is a potential that one metal can inadvertently affect other metal(s) either positively (reduced concentration) or negatively (increased concentration). Therefore, a treatment chain consisting of a sequence of multiple technologies is often needed to address all metals of concern at a site. At the Sioux Energy Center, a detailed treatability study was conducted to assess potential remedial approaches using both in situ and ex situ technologies. Based upon those results, XDD Environmental developed the following treatment chain: pH adjustment to precipitate molybdenum; sorption of sulfate using granulated limestone (if needed); and absorption using an ion-specific resin for boron removal. All technology applications occur ex situ.

To confirm laboratory results can be adequately replicated on larger-scale basis prior to full installation, a pilot-scale remediation system will be employed at the site. As described herein and when fully installed, the full-scale treatment system will establish hydraulic control of groundwater downgradient of the ash pond to allow for the reduction in concentration of elevated level metals using the technologies identified from the treatability study.

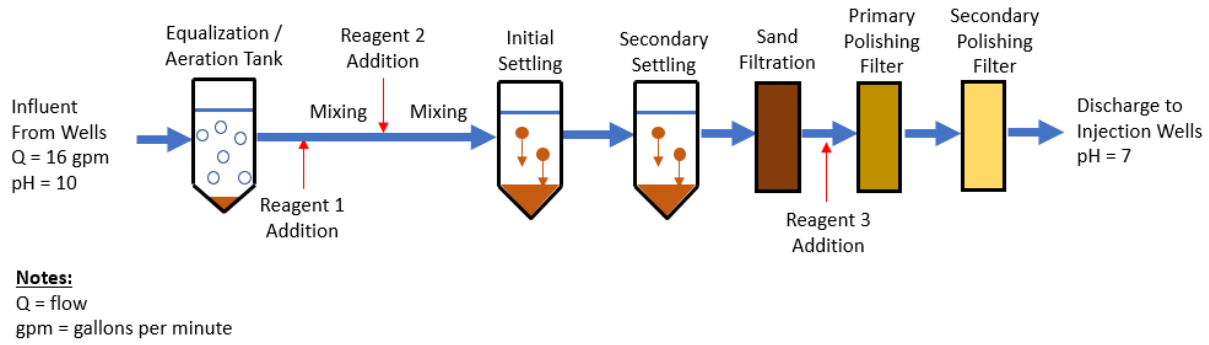
Once the pilot-scale system adequately replicates results from the treatability studies, final design, procurement and construction can occur based on site-specific and treatment-chain information. Through groundwater flow modeling, the flow parameters required to maintain hydraulic control of the impacted groundwater have been identified. Based on the modeling results, installation of eight (8) extraction wells and twenty-three (23) injection wells will allow for a control zone comprised of a 6400-

foot linear area located radially around the entire ash pond system (and upgradient from CCR Rule compliance points). The system wells will be installed in two offset rows at variable spacing with extraction wells placed interior of the injection wells. Extracted groundwater is pumped to a process area where metals are removed and returned to the aquifer within the control zone. Natural groundwater flow is then re-established for a net zero removal or change in the overall subsurface conditions; however, a radial hydraulic control boundary is established to prevent impacted waters from migrating outward.

During the pilot phase, groundwater will be extracted and injected at flow rates less than or equal to two (2) gallons per minute (gpm) from two extraction wells (total extraction of no greater than four (4) gpm). During the full-scale implementation, groundwater will be extracted and injected at flow rates less than or equal to eight (8) gpm from eight (8) extraction wells (total extraction rate of no greater than forty-five (45) gpm). This extraction rate allows for full hydraulic control within an approximate 3 year period. Extracted waters will be processed in an above-grade structure using the following treatment train:

- Aeration
- pH adjustment (reduction to ~6.0 using HCL)
- Addition of $FeCl_3$ at 40 mg/L
- Flocculation and settling
- pH adjustment (increase to ~7.0 using NaOH)
- Flocculation and settling
- Sand filtration
- Limestone filtration
- Resin filtration

The following is a graphical illustration of the process:



Precipitant sludge containing the metals are removed as necessary in secondary containers and processed onsite for transport and secondary disposal. Backwash fluids generated from the sand filters is redirected to the initial settling tank for additional processing and settlement. Regeneration waste from the resin filtration system is neutralized as part of the regeneration process and contained in secondary containers for secondary disposal. All generated waste will be handled, transported, and disposed in accordance with all applicable state and federal regulations.

After treatment, the water is reinjected into the subsurface through the injection wells. Periodic sampling of effluent water, prior to dispersion into the injection well field, is performed to ensure compliance with applicable standards for all contaminants of concern. Adjustments and optimization of the system will be performed as necessary to meet MDNR permit requirements, CCR Rule GWPS, and reduce operational requirements. Once full hydraulic control is achieved, the system flow rate will be reduced to approximately one-half. The net difference in flow rate between the extraction and injection wells will remain zero (0)gpm throughout both the pilot and full-scale phases of operation; thereby, resulting in no change in natural groundwater flow direction or rate outside of the hydraulic control zone.

6.2 TREATMENT FACILITIES [BRIEF DESCRIPTION OF FACILITIES TO ACCOMPLISH INJECTION. ATTACH A SIMPLIFIED GEOLOGIC CROSS SECTION SHOWING DEPTH OF BEDROCK, DEPTH OF AQUIFERS, AND DEPTH OF INJECTION. ALSO ATTACH MATERIAL SAFETY DATA SHEETS FOR EACH OF THE INJECTED MATERIALS. IF INJECTION WELL IS TO BE CASED, PROVIDE SCHEMATIC.]

For the pilot phase, the remediation system will consist of the following: two extraction wells with submersible pumps; above grade well heads; piping to convey groundwater to treatment facility; above ground pumps and treatment vessels with an above structure as depicted in Section 6.1; and piping to return water downgradient of extraction zone and two injection wells. The process is depicted in the attached Piping and Instrumentation Diagram (P&ID).

The injected solution will be the extracted groundwater post metal removal. The use of hydrochloric acid (HCl), ferric chloride ($FeCl_3$), sodium hydroxide (NaOH) and an ion-specific resin will remove specific metals through precipitation and absorption in an above grade process. The process involves no injection of chemicals or materials into the subsurface nor will any form of metals removal from groundwater occur in situ. To provide a better understanding of the process being presented, Safety Data Sheets (SDS) are provided for HCl, $FeCl_3$, NaOH, and the resin even though these materials will be NOT be injected into the subsurface.

The attached geologic cross section depicts the geologic strata, aquifers, and depth of injection relative to the treatment zone.

The pilot study area will be located in the western portion of the ash pond. Flow rates are not sufficient to establish hydraulic control during this initial study period. An observation well located ten (10) feet from one of the injection wells will provide short-term monitoring of the removal process and to provide a better understanding of the radial influence associated with the hydraulic control system. The observation well will be constructed with three risers per boring so that shallow, intermediate, and deep screening intervals can be observed in the injection zone. A variance for the construction of the observation well is required from MDNR and this variance request has been submitted in preparation for drilling.