

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

**UNDERGROUND INJECTION CONTROL**

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

Permit No. UI-0000010

Owner: Underground Services Company  
Address: 1300 NW Briarcliff Pkwy., Ste. 250, Kansas City, MO 64150

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Underground Services Co. – Briarcliff West  
Facility Address: US Hwy 169 & MO Hwy 9, Kansas City, MO 64116

Legal Description: See pg. 2  
UTM Coordinates: See pg. 2

Receiving Stream: Unnamed tributary to Missouri River (U)  
First Classified Stream and ID: Missouri River (P) (226)  
USGS Basin & Sub-watershed No.: (1024001-0608)

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

**FACILITY DESCRIPTION**

Underground Injection – SIC #1629

Fly ash constructive use by mixing fly ash with water to form a cementitious slurry. This slurry is injected into an abandoned underground mine in the Bethany Falls Formation for ground stabilization, where it solidifies.

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

November 1, 2012  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

October 31, 2017  
Expiration Date

John Madros, Director, Water Protection Program

Monitoring Well 1

Legal Description: NW ¼ NE ¼ Section 10, T50N, R33W, Clay County  
UTM Coordinates: X = 362281, Y = 4336590  
Receiving Stream: Subsurface to Missouri River (U)  
First Classified Stream and ID: Missouri River (P) (226)  
USGS Basin & Sub-watershed No.: (10240011-0608)

Monitoring Well 2

Legal Description: SE ¼ SW ¼ Section 3, T50N, R33W, Clay County  
UTM Coordinates: X = 361903, Y = 4336921  
Receiving Stream: Subsurface to Missouri River (U)  
First Classified Stream and ID: Missouri River (P) (226)  
USGS Basin & Sub-watershed No.: (10240011-0608)

Monitoring Well 3

Legal Description: NE ¼ NW ¼ Section 10, T50N, R33W, Clay County  
UTM Coordinates: X = 361847, Y = 4336490  
Receiving Stream: Subsurface to Missouri River (U)  
First Classified Stream and ID: Missouri River (P) (226)  
USGS Basin & Sub-watershed No.: (10240011-0608)

Sump Pump

Legal Description: SE ¼ SW ¼ Section 3, T50N, R33W, Clay County  
UTM Coordinates: X = 361922, Y = 4336559  
Receiving Stream: Surface to Missouri River (U)  
First Classified Stream and ID: Missouri River (P) (226)  
USGS Basin & Sub-watershed No.: (10240011-0608)

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

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PERMIT NUMBER UI-0000010

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

Monitoring Wells 1, 2, & 3						
Aluminum, Total Recoverable	µg/L	*		*	once/year	grab
Arsenic, Total Recoverable	µg/L	*		*	once/year	grab
Boron, Total Recoverable	µg/L	*		*	once/year	grab
Chromium III, Total Recoverable	µg/L	*		*	once/year	grab
Chromium VI, Total Dissolved	µg/L	*		*	once/year	grab
Cobalt, Total Recoverable	µg/L	*		*	once/year	grab
Copper, Total Recoverable	µg/L	*		*	once/year	grab
Iron, Total Recoverable	µg/L	*		*	once/year	grab
Lead, Total Recoverable	µg/L	*		*	once/year	grab
Manganese, Total Recoverable	µg/L	*		*	once/year	grab
Mercury, Total Recoverable	µg/L	*		*	once/year	grab
Nickel, Total Recoverable	µg/L	*		*	once/year	grab
Selenium, Total Recoverable	µg/L	*		*	once/year	grab
Thallium, Total Recoverable	µg/L	*		*	once/year	grab
Zinc, Total Recoverable	µg/L	*		*	once/year	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE DECEMBER 28, 2013.

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

PAGE NUMBER 4 of 7

PERMIT NUMBER UI-0000010

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect for 364 days. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Sump Pump</u>						
Flow	gal/mo	*		*	once/month	measured
pH	SU	**		**	once/quarter***	grab
Chemical Oxygen Demand	mg/L	*		*	once/quarter***	grab
Chlorides	mg/L	*		*	once/quarter***	grab
Sulfates	mg/L	*		*	once/quarter***	grab
Oil & Grease	mg/L	15		10	once/quarter***	grab
Aluminum, Total Recoverable	µg/L	*		*	once/quarter***	grab
Antimony, Total Recoverable	µg/L	*		*	once/quarter***	grab
Arsenic, Total Recoverable	µg/L	32.7		16.3	once/quarter***	grab
Boron, Total Recoverable	µg/L	*		*	once/quarter***	grab
Cadmium, Total Recoverable	µg/L	8.1		4	once/quarter***	grab
Chromium III, Total Recoverable	µg/L	2672.4		1332	once/quarter***	grab
Chromium VI, Total Recoverable	µg/L	15.2		7.6	once/quarter***	grab
Cobalt, Total Recoverable	µg/L	*		*	once/quarter***	grab
Copper, Total Recoverable	µg/L	*		*	once/quarter***	grab
Iron, Total Recoverable	µg/L	*		*	once/quarter***	grab
Lead, Total Recoverable	µg/L	150.5		75	once/quarter***	grab
Manganese, Total Recoverable	µg/L	*		*	once/quarter***	grab
Mercury, Total Recoverable	µg/L	2.8		1.4	once/quarter***	grab
Nickel, Total Recoverable	µg/L	705		351.4	once/quarter***	grab
Selenium, Total Recoverable	µg/L	*		*	once/quarter***	grab
Thallium, Total Recoverable	µg/L	*		*	once/quarter***	grab
Zinc, Total Recoverable	µg/L	*		*	once/quarter***	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2013.

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

PAGE NUMBER 5 of 7

PERMIT NUMBER UI-0000010

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

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Sump Pump</u>						
Flow	gal/mo	*		*	once/month	measured
pH	SU	**		**	once/quarter***	grab
Chemical Oxygen Demand	mg/L	*		*	once/quarter***	grab
Chlorides	mg/L	*		*	once/quarter***	grab
Sulfates	mg/L	*		*	once/quarter***	grab
Oil & Grease	mg/L	15		10	once/quarter***	grab
Aluminum, Total Recoverable	µg/L	*		*	once/quarter***	grab
Antimony, Total Recoverable	µg/L	*		*	once/quarter***	grab
Arsenic, Total Recoverable	µg/L	32.7		16.3	once/quarter***	grab
Boron, Total Recoverable	µg/L	*		*	once/quarter***	grab
Cadmium, Total Recoverable	µg/L	8.1		4	once/quarter***	grab
Chromium III, Total Recoverable	µg/L	2672.4		1332	once/quarter***	grab
Chromium VI, Total Recoverable	µg/L	15.2		7.6	once/quarter***	grab
Cobalt, Total Recoverable	µg/L	*		*	once/quarter***	grab
Copper, Total Recoverable	µg/L	*		*	once/quarter***	grab
Iron, Total Recoverable	µg/L	*		*	once/quarter***	grab
Lead, Total Recoverable	µg/L	150.5		75	once/quarter***	grab
Manganese, Total Recoverable	µg/L	*		*	once/quarter***	grab
Mercury, Total Recoverable	µg/L	2.8		1.4	once/quarter***	grab
Nickel, Total Recoverable	µg/L	705		351.4	once/quarter***	grab
Selenium, Total Recoverable	µg/L	8.1		4	once/quarter***	grab
Thallium, Total Recoverable	µg/L	*		*	once/quarter***	grab
Zinc, Total Recoverable	µg/L	180.1		89.7	once/quarter***	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2014.

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 6 of 7	
					PERMIT NUMBER UI-0000010	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Synthetic Precipitation Leaching Procedure Test (See Note 1).	µg/L	*		*	once/month	composite
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2013</u> .						
Tons of Fly Ash injected. See Special Conditions for map requirement.	tons	*		*	once/year	report
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>DECEMBER 28, 2013</u> .						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)**

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

\*\*\* See table below for quarterly sampling:

Minimum Sampling Requirements			
Quarter	Months	Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 <sup>th</sup>
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

Note 1 – Perform a Synthetic Precipitation Leaching Procedure Test, EPA Method 1312 on a composite sample of fly ash. Aliquots shall be taken daily from each power plant that supplies fly ash and combined to create the monthly composite sample. Evaluate for the following metals: Aluminum, Antimony, Arsenic, Boron, Cadmium, Chromium III, Chromium VI, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Thallium, & Zinc.

**C. SPECIAL CONDITIONS**

1. No discharge of storm water containing fly ash is authorized by this permit.
2. Once per year permittee must submit a one inch equals 1000 feet map on a USGS topographic base showing where the ash was injected during the preceding year.
3. Submit a Class V Well Inventory Form to DGLS for each injection borehole drilled.
4. There shall be no release of polychlorinated biphenyl compounds (PCBs) to waters of the state at or above the level of quantification currently defined as 1 µg/L or 1 ppb.
5. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (1) controls any pollutant not limited in the permit.

C. SPECIAL CONDITIONS (continued)

- (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list. The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.
5. Report as no-discharge when a discharge does not occur during the reporting period.

D. SCHEDULE OF COMPLIANCE

1. By 3 months from the date of issuance of this permit submit a Site Characterization Workplan to the Central Office for approval. Permittee shall develop the Site Characterization Workplan in accordance with *Guidance for Conducting a Detailed Hydrogeologic Site Characterization and Designing a Groundwater Monitoring Program* issued by the Geological Survey Program, Environmental Geology Section, dated December 10, 2010. The purpose of the Site Characterization Workplan will be to characterize groundwater flow outside the zone of influence created by the mine.
2. By 27 months from the date of issuance of this permit submit a Site Characterization Report detailing the findings from completion of the Site Characterization Workplan to the Central Office for verification of conclusions.
3. By 33 months from the date of issuance of this permit submit a Groundwater Monitoring & Sampling Plan (GMSAP) to the Central Office for approval. Permittee shall develop the GMSAP in accordance with the guidelines contained in *Guidance for Conducting a Detailed Hydrogeologic Site Characterization and Designing a Groundwater Monitoring Program*.
4. By 45 months from the date of issuance of this permit have all elements of the GMSAP fully implemented.

**Missouri Department of Natural Resources**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**UI-000010**  
**UNDERGROUND SERVICES COMPANY – BRIARCLIFF WEST**

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

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)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 (operating permit) listed below.

**Part I – Facility Information**

A 12” hole is drilled from the surface down through the mine roof. The hole is then cased with 8” PVC pipe and grouted with flowable fill. A mixer hopper is then placed on the hole. Pneumatic trailers with fly ash blow the fly ash into the hopper where water is introduced into the hopper to form a cementitious slurry which flows down into the mine. This make-up water comes from the sump pump used for mine de-watering, plus occasionally, raw makeup water from the City of Gladstone’s water intake at the Missouri River. Excess water from mine de-watering (plus any excess Gladstone raw water) is pumped out to an unclassified stream. This discharge is regulated by the requirements for the outfall called “Sump Pump” in Table A of the permit.

Application Date: June 5, 2009  
Expiration Date: June 10, 2009

**OUTFALL(S) TABLE:**

OUTFALL	FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
Sump Pump	Dependent on precipitation	none	groundwater	0.6
Monitoring wells	none	none		

**Part II – Rationale and Derivation of Effluent Limitations & Permit Conditions**

**ANTI-BACKSLIDING:**

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

- Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. The monitoring wells were supposed to monitor for off-site migration of contaminants from the injection area. It has since been learned that the monitoring wells are only monitoring existing groundwater in the area. Therefore, numeric limits have not been applied to the monitoring wells.

**SCHEDULE OF COMPLIANCE (SOC):**

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, 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.

Applicable

**WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:**

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ;

Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA’s “Technical Support Document For Water Quality-based Toxics Control” (EPA/505/2-90-001).

Number of Samples “n”:

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of “n” for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for “n” must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is “n = 4” at a minimum. For Total Ammonia as Nitrogen, “n = 30” is used.

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

### **Part III – Effluent Limits Determination**

#### **OUTFALL “MONITORING WELLS 1, 2, & 3” – DERIVATION AND DISCUSSION OF LIMITS:**

The depth of the mine causes a zone of influence in the area of the monitoring wells. This means that groundwater in the region surrounding the mine flows inward to the mine. Samples from these monitoring wells are merely characterizing existing background groundwater, not anything from the mine. When the mine has been backfilled, normal groundwater flow around the area of the mine will return to normal. Monitoring for Aluminum, Antimony, Arsenic, Boron, Cadmium, Chromium III & VI, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Thallium, and Zinc were chosen because they are pollutants of concern associated with coal combustion residues. This information was not available to the permit writer at the last renewal. Therefore we will have a monitoring only requirement for the monitoring wells. Information gathered from this monitoring may be useful in establishing the site characterization plan and determining if any sources of contamination are emanating from the fly ash injection activities.

pH, Chemical Oxygen Demand, and Oil & Grease were removed because these constituents are not pollutant of concern associated with coal combustion residues.

Total Ammonia Nitrogen is not included because there is no bottom scrubber ash disposed of at this site.

#### **OUTFALL “SUMP PUMP” – DERIVATION AND DISCUSSION OF LIMITS:**

**Flow. (gallons / month)** - In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

Groundwater from the mine is used to create the fly ash slurry that is pumped into the mine. Precipitation will sometimes cause an excess of groundwater in the mine and must be pumped out. The length of these discharges will be for 6 – 8 hours during a 24 hour period. Therefore acute water quality criteria will apply, when applicable, for calculation of limits.

- **pH.** 7.015 (9) (G) 1.
- **Chemical Oxygen Demand.** Monitoring only requirement due to Best Professional Judgment. This is a measure of the oxygen consuming capacity of inorganic and organic matter present in wastewater.
- **Chlorides, Sulfates.** Monitoring only requirement due to Best Professional Judgment to establish site specific limits in the future.
- **Oil & Grease.** Effluent limitation due to Best Professional Judgment for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Aluminum, Antimony, Arsenic, Boron, Cadmium, Chromium III & VI, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Thallium, and Zinc.** Monitoring only requirement due to Best Professional Judgment. These are pollutants of concern associated with coal combustion residues.

**Metals**

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the “Technical Support Document For Water Quality-based Toxic Controls” (EPA/505/2-90-001) and “The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 162 mg/L is used in the conversion below.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.924	0.889
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Copper	0.960	0.960
Lead	0.721	0.721
Mercury	0.850	N/A
Nickel	0.998	0.997
Zinc	0.980	0.980

Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 162 mg/L.

- **Aluminum, Total Recoverable.** Protection of Aquatic Life, Acute Criteria = 750 µg/L.

Acute WLA =  $C_e = 750 \mu\text{g/L}$

$LTA_a = 750 (0.321) = 240.8 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL =  $240.8 (3.11) = 748.9 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

AML =  $240.8 (1.55) = 373.2 \mu\text{g/L}$  [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

- **Arsenic, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 20 µg/L.

Chronic =  $20/1.000 = 20 \mu\text{g/L}$

Chronic WLA =  $C_e = 20 \mu\text{g/L}$

$LTA_c = 20 (0.527) = 10.5 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL =  $10.5 (3.11) = 32.7 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

AML =  $10.5 (1.55) = 16.3 \mu\text{g/L}$  [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

- **Cadmium, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 7.6 µg/L.

Acute =  $7.6/0.924 = 8.2 \mu\text{g/L}$

Acute WLA =  $C_e = 8.2 \mu\text{g/L}$

$LTA_a = 8.2 (0.321) = 2.6 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL =  $2.6 (3.11) = 8.1 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

AML =  $2.6 (1.55) = 4 \mu\text{g/L}$  [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

- **Chromium III, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 845.9 µg/L.

$$\text{Acute} = 845.9/0.316 = 2676.9 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 2676.9 \text{ µg/L}$$

$$\text{LTA}_a = 2676.9 (0.321) = 859.3 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 859.3 (3.11) = 2672.4 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 859.3 (1.55) = 1332 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Chromium VI, Total Dissolved.** Protection of Aquatic Life Acute Criteria = 15 µg/L.

$$\text{Acute} = 15/0.982 = 15.3 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 15.3 \text{ µg/L}$$

$$\text{LTA}_a = 15.3 (0.321) = 4.9 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 4.9 (3.11) = 15.2 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 4.9 (1.55) = 7.6 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Copper, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 21.2 µg/L.

$$\text{Acute} = 21.2/0.960 = 22.1 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 22.1 \text{ µg/L}$$

$$\text{LTA}_a = 22.1 (0.321) = 7.1 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 7.1 (3.11) = 22.1 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 7.1 (1.55) = 11 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Iron, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 1000 µg/L.

$$\text{Chronic WLA} = C_e = 1,000 \text{ µg/L}$$

$$\text{LTA}_c = 1000 (0.527) = 527 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 527 (3.11) = 1639 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 527 (1.55) = 816.9 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Lead, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 108.7 µg/L.

$$\text{Acute} = 108.7/0.721 = 150.8 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 150.8 \text{ µg/L}$$

$$\text{LTA}_a = 150.8 (0.321) = 48.4 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 48.4 (3.11) = 150.5 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 48.4 (1.55) = 75 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Mercury, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 2.4 µg/L.

$$\text{Acute} = 2.4/0.850 = 2.8 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 2.8 \text{ µg/L}$$

$$\text{LTA}_a = 2.8 (0.321) = 0.9 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 0.9 (3.11) = 2.8 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 0.9 (1.55) = 1.4 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile}, n = 4]$$

- **Nickel, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 704.7 µg/L.

$$\text{Acute} = 704.7/0.998 = 706.1 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 706.1 \text{ µg/L}$$

$$\text{LTA}_a = 706.1 (0.321) = 226.7 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 226.7 (3.11) = 705 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 226.7 (1.55) = 351.4 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile}, n = 4]$$

- **Selenium, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 5 µg/L.

$$\text{Chronic WLA} = C_e = 5 \text{ µg/L}$$

$$\text{LTA}_c = 5 (0.527) = 2.6 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 2.6 (3.11) = 8.1 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 2.6 (1.55) = 4 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile}, n = 4]$$

- **Zinc, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 176.7 µg/L.

$$\text{Acute} = 176.7/0.980 = 180.3 \text{ µg/L}$$

$$\text{Acute WLA} = C_e = 180.3 \text{ µg/L}$$

$$\text{LTA}_a = 180.3 (0.321) = 57.9 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 57.9 (3.11) = 180.1 \text{ µg/L} \quad [\text{CV} = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 57.9 (1.55) = 89.7 \text{ µg/L} \quad [\text{CV} = 0.6, 95^{\text{th}} \text{ Percentile}, n = 4]$$

## **Part IV – Administrative Requirements**

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

### **PUBLIC NOTICE:**

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

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

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

- The Public Notice period for this operating permit is tentatively schedule to begin in March 2012.

- The Public Notice period for this operating permit was from March 30, 2012 to April 29, 2012. Responses to the Public Notice of this operating permit warrant the modification of effluent limits and/or the terms and conditions of this permit. List of metals was changed to match with EPA's list of metals of concern associated with coal combustion residues. A requirement to perform monthly SPLP tests was placed in the permit.

**DATE OF FACT SHEET:** AUGUST 6, 2012

### **COMPLETED BY:**

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