

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

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

Permit No.	MO-0001881
Owner: Address:	The Doe Run Resources Corporation d/b/a The Doe Run Company PO Box 500, Viburnum, MO 65566
Continuing Authority: Address:	Same as above Same as above
Facility Name: Facility Address:	Doe Run Company, Sweetwater Mine/Mill Site 1382 Sweetwater Mine Road, Ellington, MO 63638
Legal Description: UTM Coordinates:	See Page 2 and 3 See Page 2 and 3
Receiving Stream: First Classified Stream and ID: USGS Basin & Sub-watershed No.:	See Page 2 and 3 See Page 2 and 3 See Page 2 and 3

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

FACILITY DESCRIPTION

See Page 2 and 3

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.

July 10, 2009 January 11, 2013
Effective Date Revised Date

Sara Parker Pauley, Director, Department of Natural Resources

July 9, 2014
Expiration Date

John Madros, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – Domestic waste / sludge disposal - SIC #1031

Septic tanks/Subsurface Drip Irrigation/No-Discharge

Design flow is 4,500 gallons per day.

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664251 Y=4136485

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

Outfall #002 - Mine dewatering/process wastewater from milling of lead, zinc, and copper bearing ores/tailings dam toe drain discharge/truck wash water/storm water runoff from the facility and surrounding watershed that collects in the tailings impoundment undergoes treatment via settling and a meander treatment system. Storm water runoff from the facility and surrounding watershed is combined with discharge from the meander system – SIC #1031

Average flow is 5.2 MGD, Maximum measured and reported flow is 19.3 MGD. Because of storm water influence, actual flow is dependent on precipitation

Legal Description: NE ¼, SW ¼, Sec. 23, T31N, R2W, Reynolds County

UTM Coordinates: X=665406, Y=4136720

Receiving Stream: Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

Outfall #004 – Industrial storm water at mining & milling facility – SIC #1031

Monitoring is no longer required at this outfall, the SWPPP has been amended to require no new sources of pollutants will be placed in the area that drains to this outfall.

Legal Description: NE ¼, NE ¼, Sec. 34, T31N, R2W, Reynolds County

UTM Coordinates: X=664705, Y=4133913

Receiving Stream: Unnamed tributary to Sweetwater Creek (U)

First Classified Stream and ID: Sweetwater Creek (P) (2764)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #005 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031

Monitoring system for Outfall #001

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664158 Y=4136451

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #006 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031

Monitoring system for Outfall #001

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664172 Y=4136450

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #007 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031

Monitoring system for Outfall #001

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664191 Y=4136450

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #008 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031

Monitoring system for Outfall #001

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664207 Y=4136451

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

FACILITY DESCRIPTION (continued):

MW #009 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664203 Y=4136464
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #010 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664217 Y=4136464
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #011 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664261 Y=4136473
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #012 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664274 Y=4136467
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #013 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664290 Y=4136461
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #014 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664305 Y=4136455
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

Outfall #015 – Industrial storm water at mining & milling facility – SIC #1031
Emergency overflow from stormwater retention basin. The stormwater is comingled with mine dewatering and process wastewater from milling of lead, zinc, and copper bearing ores. The retention basin will be operated in a no-discharge fashion by pumping back to the tailings impoundment with a maximum pumping capacity of 4,000 gallon per minute. Flows in excess of the pumping capacity may be discharged in accordance with the effluent limitations provided the excess flow is being generated by a 1 in 10 year 24 hour storm event (rainfall exceeding 5.5 inches in a 24 hour period).
Legal Description: SE ¼, SW ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=663889, Y=4136127
Receiving Stream: Unnamed tributary to Sweetwater Creek (U)
First Classified Stream and ID: Sweetwater Creek (P) (2764)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 9	
					PERMIT NUMBER MO-0001881	
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 February 1, 2013. 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>Outfall #001</u> No-Discharge						
<u>Outfall #002</u>						
Flow	MGD	*		*	once/month	24 hr estimate
Total Suspended Solids	mg/L	30		20	once/month	grab
pH – Units	SU	**		**	once/month	grab
Hardness, Total	mg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	0.9		0.5	once/month	grab
Copper, Total Recoverable	µg/L	34.3		21.1	once/month	grab
Lead, Total Recoverable	µg/L	28.0		13.9	once/month	grab
Zinc, Total Recoverable	µg/L	272.0		128.5	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>March 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<u>Outfall #002</u> Mercury	µg/L	2.0		1.0	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2013</u> .						
<u>Outfall #002</u> Whole Effluent Toxicity (WET) test	TU	1.6, See Special Conditions			once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>April 28, 2013</u> .						
<u>MWs #005, #006, #007, #008, #009, #010, #011, #012, #013, and #014 (Lysimeters)</u>						
Cadmium, Total Recoverable	µg/L	*		*	once/quarter	grab
Lead, Total Recoverable	µg/L	*		*	once/quarter	grab
Zinc, Total Recoverable	µg/L	*		*	once/quarter	grab
Nitrate	mg/L	*		*	once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>April 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 5 of 9		
				PERMIT NUMBER MO-0001881		
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. 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
Outfall #015 (Notes 1, 2, and 3) Basin Freeboard	Feet	*			once/month	measured
Rainfall	Inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; TEST RESULTS ARE DUE ON THE <u>28th DAY OF THE FOLLOWING MONTH AFTER THE CESSATION OF THE DISCHARGE</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, 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.

Note 1 – Emergency Discharge. Outfall 015 may only discharge if rainfall exceeds the 1 in 10 year (Data taken from the Missouri Climate Atlas) rainfall event. **Discharge for any other reason shall constitute a permit violation and shall be recorded in accordance with Standard Conditions, Part 1, Section B.2.b.** Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the following month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	Units
Flow	MGD
Hardness	mg/L
Total Suspended Solids	mg/l
pH – Units	Standard Units
Cadmium, Total Recoverable	µg/L
Copper, Total Recoverable	µg/L
Lead, Total Recoverable	µg/L
Zinc, Total Recoverable	µg/L

Note 2 - Basin freeboard shall be reported as lagoon water level in feet below the overflow level.

Note 3 - Records shall be maintained and summarized into an annual operating report, which shall be submitted by January 28th of each year for the previous calendar year period. The report shall include the following:

- a. Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
- b. The number of days the stormwater retention basin has discharged during the year, the discharge flow, the reasons discharge occurred and effluent analysis performed;

C. SPECIAL CONDITIONS

1. 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
 - (2) controls any pollutant not limited in the permit.
 - (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. SPECIAL CONDITIONS (continued)

1. (continued)

- (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.

2. All outfalls must be clearly marked in the field.

3. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

4. Report as no-discharge when a discharge does not occur during the report period.

5. Water Quality Standards

- (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
- (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

6. Industrial Sludge Disposal

- (a) Disposal of industrial sludge is not authorized by this permit. Industrial sludge shall be disposed at a permitted solid waste disposal facility in accordance with 10 CSR 80; or if the sludge is determined to be hazardous waste, shall be disposed at a permitted hazardous waste disposal facility pursuant to 10 CSR 25.
- (b) Non-hazardous sludge that is disposed on site or that is exempted under 10 CSR 80 must obtain applicable permits under 10 CSR 20-6.015 and 10 CSR 20-6.200.
- (c) Each effluent monitoring report shall also specify the date any sludge is removed from the facility, who removed the sludge and the number of gallons or quantity of sludge removed. The final disposal location shall be reported, including the name of the disposal facility, the solid waste or hazardous waste disposal permit number, and date of permit issuance.
- (d) This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act.

C. SPECIAL CONDITIONS (continued)

7. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared within 90 days and implemented within 120 days of permit issuance. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.

The SWPPP must include the following:

- (a) An assessment of all storm water discharges associated with the facility, including those flowing to the tailings pond. This must include a list of potential contaminants and an annual estimate of amounts that will be used in the described activities.
- (b) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water.
- (c) The SWPPP must include a schedule for a monthly site inspection and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. Corrective action to address deficiencies must be initiated within seven days of discovery by the permittee. Inspection reports must be kept on site with the SWPPP. These must be made available to DNR personnel upon request.
- (d) A provision for designating an individual to be responsible for environmental matters.
- (e) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.

8. The permittee shall adhere to the following minimum Best Management Practices:

- (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or other activities and thereby prevent the contamination of storm water from these substances.
- (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
- (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water 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.
- (d) Provide good housekeeping practices on the site to keep solid waste from entry into waters of the state.
- (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.

9. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	Toxic Unit Limit	FREQUENCY	SAMPLE TYPE	MONTH
002	100%	1.6 TUc	once/quarter	grab	March, May, August & October

Dilution Series					
100%	62.5%	25%	12.5%	6.25%	(Control) 100% upstream, if available

(a) Test Schedule and Follow-Up Requirements

- (1) All tests results shall be submitted using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity Tests (continued):

within 14 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

- (a) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (b) Samples submitted for analysis of upstream receiving water may be collected as a grab.
 - (c) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (d) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (e) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (f) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (g) Where instream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (h) Samples submitted for analysis of downstream receiving water may be collected as a grab.
 - (i) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
- (2) The WET test will be considered a failure if the Toxic Units exceed the limit in the table above.
 - (3) All failing test results along with complete copies of the test reports as received from the laboratory shall be reported to the WATER PROTECTION PROGRAM within 14 calendar days of the availability of the results.
 - (4) Unless waived by the Department, if the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter until one of the following conditions are met:
 - (a) Three consecutive tests pass. No further tests need to be performed until next regularly scheduled test period.
 - (b) A total of three tests fail.
 - (5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM within 14 calendar days of the third failed test.
 - (6) Additionally, upon failure of the third follow up test, the permittee shall contact the Water Protection Program within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the Water Protection Program directs the permittee to conduct a TIE or TRE, the permittee shall submit a plan for conducting a TIE or TRE within 60 calendar days of receiving such direction. This plan for conducting the TIE or TRE must be approved by the Program before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (7) Upon the Department's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
 - (8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
 - (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
 - (10) Submit a concise summary in tabular format of all WET test results with the annual report.

(c) Test Conditions

- (1) Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821/R-02/013, and Errata for the Effluent and Receiving Water Toxicity Testing Manuals: Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms; Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms; and Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA-600/R-98/182.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity Tests (continued):

- (2) The test shall be a 3-Brood *Ceriodaphnia dubia* Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test. Testing with the green algae *Selenastrum* is not required.
- (3) All tests, including repeat tests for previous failures, shall include both test species listed below unless prior approval to use only one species is granted by the department.
- (4) Test species: *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Reconstituted dilution/control water used will be moderately hard water as described in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms.
- (6) Multiple-dilution tests will be run with:
 - (a) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (b) reconstituted water.
- (7) If, in any control more than 10% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within two (2) weeks. Furthermore, if the results do not meet the acceptability criteria in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

10. The permittee shall develop and implement an Operation & Maintenance (O&M) Plan for the Meander System (System). The O&M Plan must be prepared by December 1, 2011 and implemented by January 1, 2012. The O&M Plan shall include the following:

- (a) A description of the System.
- (b) Designation of personnel responsible for implementation of the O&M Plan and contact information, which designation may be modified upon notification to the State.
- (c) A schedule for System inspection at least every 90 days; a requirement for System inspections following a 1-in-5 year 24-hour (4.39 inches) or greater precipitation event; and an inspection form. The inspections must include observations of erosion, excessive deposition, clogging by debris, nuisance animal activities, nuisance plant growth, bank instability, and other deficiencies. Inspection reports must be kept on site with the O&M Plan. These must be made available to the State upon request.
- (d) A listing of specific maintenance and repair actions and a narrative explaining how decisions will be made to plan and implement actions required to correct deficiencies identified during inspections.
- (e) A contingency plan to address unforeseen impacts to the System.

11. There are two lysimeters per drip irrigation zone. If one lysimeter is not working (fails to collect a sample for the required analysis), it should be repaired immediately but no later than the following quarterly monitoring cycle and the drip irrigation zone may be left in service. If both lysimeters of the same drip irrigation zone are not working, the drip irrigation zone monitored by those lysimeters must be taken out of service and remain out of service until those lysimeters are repaired. Repairs to the lysimeters should be made as soon as practicable but no later than the following quarterly monitoring cycle.

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF CONSTRUCTION
OF
MO-0001881
DOE RUN, SWEETWATER MINE & MILL

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.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Major , Minor , Industrial Facility ; Variance ; Master General Permit ; General Permit Covered Facility ; and/or permit with widespread public interest .

Part I – Facility Information

Facility Type: IND Industrial process wastewater, Metallic Mineral Mining
Facility SIC Code(s): 1031

Facility Description:

Mining and milling of lead, zinc and copper bearing ores. Process wastewaters include mine dewatering, process wastewater from milling of ores, tailings slurry, tailings impoundment dam toe drain discharge, and domestic wastewater. The facility also manages truck wash water and storm water runoff from the facility and surrounding watershed. Domestic wastewater receives treatment via Septic tanks and Subsurface Drip Irrigation. Mine water, process wastewater from milling of ores, tailings slurry, tailings dam toe drainage discharge, truck wash water, and storm water runoff from the facility and surrounding watershed that collects in the tailing impoundment receives treatment by settling in the tailings impoundment and subsequent treatment in a meander system. Entire site is 7,700 acres, 60 of which is being actively used for mining and milling operations. The site includes a 592 acre tailings pond

Original Permit Revision Comments:

Changes to this permit include:

- Revision of the interim effluent limits for Copper, Lead & Mercury, and revision of the final effluent limits for Cadmium, Copper, Lead, Mercury and Zinc. A limit now appears for Mercury, in accordance with the Effluent Limit Guideline for this industry. The remaining metals limits were modified as a result of site specific dissolved metal translator study conducted by the permittee, under a study plan approved by the Department of Natural Resources.
- Correction of the Effluent Limit Guideline citations
- The sample type for WET testing is changed from a 24 hr. composite sample to a grab sample.
- Elimination of the monitoring requirements at outfall 004. This stormwater outfall has a very small watershed, and because of the type of retention basin the outfall generally does not discharge. Sources of pollutants are now limited to only a small diesel storage tank at this location, and the permittee has amended their SWPPP to prevent storage of any other source of pollutants. The location remains a permitted outfall not only because of the storage tank, but also because of the air vent/emergency exit shaft. The area is technically part of the industrial facility, and does not qualify for a no exposure certification.

Construction Permit Modification Public Notice

The purpose of this modification was to update the facility description and addition of an emergency overflow outfall #0015. Storm water runoff within the plant site is currently collected in a sump and is pumped back at a rate of 1000 gallons per minute to the tailings impoundment. A storm water holding basin is being proposed to store storm water and expand the pump back capabilities to 4000 gallons per minute. This will reduce the number of overflows from the storm water collection sump and pollutant load to the stream. In the event of an overflow, monitoring is proposed. The facility will normally be operated in a no-discharge manner unless flows exceed pumping capacity. There were no other changes in the facility description or effluent limits. This version of the permit may be issued pending completion of construction.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.004	Equivalent to Secondary	Domestic/No Discharge	1.7
002	29.9	Settling	Industrial Process Wastewater	0.8
004	Varies	None	Industrial Storm water	0.5
005	N/A	N/A	Groundwater Monitoring	1.7
006	N/A	N/A	Groundwater Monitoring	1.7
007	N/A	N/A	Groundwater Monitoring	1.7
008	N/A	N/A	Groundwater Monitoring	1.7
009	N/A	N/A	Groundwater Monitoring	1.7
010	N/A	N/A	Groundwater Monitoring	1.7
011	N/A	N/A	Groundwater Monitoring	1.7
012	N/A	N/A	Groundwater Monitoring	1.7
013	N/A	N/A	Groundwater Monitoring	1.7
014	N/A	N/A	Groundwater Monitoring	1.7
015	Varies	Settling	Industrial Storm water/Emergency Overflow	1.5

Outfall #001 – Domestic waste / sludge disposal - SIC #1031

Septic tanks/Subsurface Drip Irrigation/No-Discharge

Design flow is 3,500 gallons per day.

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664251 Y=4136485

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

Outfall #002 - Mine dewatering/process wastewater from milling of lead, zinc, and copper bearing ores/tailings dam toe drain discharge/truck wash water/storm water runoff from the facility and surrounding watershed that collects in the tailings impoundment undergoes treatment via settling and a meander treatment system. Storm water runoff from the facility and surrounding watershed is combined with discharge from the meander system – SIC #1031

Average flow is 5.2 MGD, Maximum measured and reported flow is 19.3 MGD. Because of storm water influence, actual flow is dependent on precipitation

Legal Description: NE ¼, SW ¼, Sec. 23, T31N, R2W, Reynolds County

UTM Coordinates: X=665406, Y=4136720

Receiving Stream: Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

Outfall #004 – Industrial storm water at mining & milling facility – SIC #1031

Monitoring is no longer required at this outfall, the SWPPP has been amended to require no new sources of pollutants will be placed in the area that drains to this outfall.

Legal Description: NE ¼, NE ¼, Sec. 34, T31N, R2W, Reynolds County

UTM Coordinates: X=664705, Y=4133913

Receiving Stream: Unnamed tributary to Sweetwater Creek (U)

First Classified Stream and ID: Sweetwater Creek (P) (2764)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #005 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031

Monitoring system for Outfall #001

Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County

UTM Coordinates: X=664158 Y=4136451

Receiving Stream: Unnamed Tributary to Adair Creek (U)

First Classified Stream and ID: Logan Creek (P) Losing (2763)

USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #006 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664172 Y=4136450
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #007 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664191 Y=4136450
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #008 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664207 Y=4136451
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW#009 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664203 Y=4136464
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #010 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664217 Y=4136464
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW#011 – Groundwater Monitoring Lysimeter/Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664261 Y=4136473
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #012 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664274 Y=4136467
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #013 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664290 Y=4136461
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

MW #014 – Groundwater Monitoring Lysimeter /Non Surface Discharge – SIC 1031
Monitoring system for Outfall #001
Legal Description: NW ¼, SE ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=664305 Y=4136455
Receiving Stream: Unnamed Tributary to Adair Creek (U)
First Classified Stream and ID: Logan Creek (P) Losing (2763)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

Outfall #015 – Industrial storm water at mining & milling facility – SIC #1031
Emergency overflow from stormwater retention basin. The stormwater is comingled with mine dewatering and process wastewater from milling of lead, zinc, and copper bearing ores. The retention basin will be operated in a no-discharge fashion by pumping back to the tailings impoundment with a maximum pumping capacity of 4,000 gallon per minute. Flows in excess of the pumping capacity may be discharged in accordance with the effluent limitations provided the excess flow is being generated by a 1 in 10 year 24 hour storm event (rainfall exceeding 5.5 inches in a 24 hour period).
Legal Description: SE ¼, SW ¼, Sec. 22, T31N, R2W, Reynolds County
UTM Coordinates: X=663889, Y=4136127
Receiving Stream: Unnamed tributary to Sweetwater Creek (U)
First Classified Stream and ID: Sweetwater Creek (P) (2764)
USGS Basin & Sub-watershed No.: (11010007 – 0401)

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
 - Municipalities
 - Public Sewer District:
 - County
 - Public Water Supply Districts:
 - Private sewer company regulated by the Public Service Commission:
 - State or Federal agencies:

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.

Not Applicable ; This facility is not required to have a certified operator.

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

- Missouri or Mississippi River [10 CSR 20-7.015(2)]:
- Lake or Reservoir [10 CSR 20-7.015(3)]:
- Losing [10 CSR 20-7.015(4)]:
- Metropolitan No-Discharge [10 CSR 20-7.015(5)]:
- Special Stream [10 CSR 20-7.015(6)]:
- Subsurface Water [10 CSR 20-7.015(7)]:
- All Other Waters [10 CSR 20-7.015(8)]:

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Adair Creek	U	----	General Criteria	11010007	Ozark/Black/Current
Logan Creek (Losing)	P	2763	LWW, AQL, SCR, WBC(A)		
Sweetwater Creek	P	2764	LWW, AQL, WBC(B)***		

- * - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).
- ** - Ecological Drainage Unit
- *** - UAA has not been conducted.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Adair Creek	0.0	0.0	0.0
Logan Creek (Losing)	0.1	0.1	1.0
Sweetwater Creek	0.1	0.1	1.0

MIXING CONSIDERATIONS:

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

Part IV – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Applicable ;
If applicable, then please explain

Not Applicable ;
The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

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.

- New facility, backsliding does not apply.

- All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply. The effluent limit increases are as protective of instream water quality standards as the previously established limits. Adjustments to the effluent limits were made in accordance with U.S. EPA guidance on site specific dissolved metals translators. In addition, the facility is not presently in compliance with the previous effluent limits, therefore the revised effluent limits do not represent a possible decrease in performance.

- 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.

ANTIDEGRADATION:

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- Renewal no degradation proposed and no further review necessary.

- New and/or expanded discharge, please see **APPENDIX # – ANTIDEGRADATION ANALYSIS.**

- No degradation proposed and no further review necessary. Increased effluent limits do not represent additional loading, because the facility is not in compliance with the previous limits. The proposed final effluent limits still result in decreased loading to the stream.

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.

Applicable ;

The permittee/facility is currently under enforcement action by the U.S. EPA and the State of Missouri due to violations of the Missouri Clean Water Law and the Federal Clean Water Act.

Not Applicable ;

The permittee/facility is not currently under Water Protection Program enforcement action.

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 ;

The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)].

Not Applicable ;

This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Applicable ;

A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

Not Applicable ;

At this time, the permittee is not required to develop and implement a SWPPP.

VARIANCE:

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

Applicable ;

Not Applicable ;

This operating permit is not drafted under premises of a petition for variance.

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.

Not Applicable ;

Wasteload allocations were not calculated.

WLA MODELING:

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

Applicable ;

Not Applicable ;

A WLA study was either not submitted or determined not applicable by Department staff. The dissolved metals translator study is not a wasteload allocation study, it adjusts effluent limit calculations based on the previous WLAs.

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.

WHOLE EFFLUENT TOXICITY (WET) TEST:

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable ;

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by all facilities meeting the following criteria:

- Facility is a designated Major.
 - Facility continuously or routinely exceeds its design flow.
 - Facility (industrial) that alters its production process throughout the year.
 - Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
 - Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH₃)
 - Facility is a municipality or domestic discharger with a Design Flow ≥ 22,500 gpd.
 - Other – facility has demonstrated that its effluent is significantly toxic. Facility will pursue upgrades to wastewater treatment.
- Due to the lack of variation expected in discharge quality from outfall 002, grab samples for WET are appropriate. The primary source of flow for outfall 002 is mine dewatering.

Mine water is conveyed to sump locations and then pumped to the surface. At the surface the mine water is treated by settling in basins before discharge. The hydraulic residence time in the settling basins varies at each facility but is typically greater than 24 hours. Any variability in pollutant concentrations in the mine water would be dampened as a result of significant attenuation and mixing while in the settling basins. Therefore, discharges through monitored outfalls can be expected to exhibit minimal variation over the course of a day..

Not Applicable ;

At this time, the permittee is not required to conduct WET test for this facility.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are 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 waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Applicable ;

Not Applicable ;

This facility does not discharge to a 303(d) listed stream.

REASONABLE POTENTIAL ANALYSIS (RPA):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable ;

A RPA was conducted on appropriate parameters. Please see **APPENDIX A – RPA RESULTS**.

Part V – Effluent Limits Determination

Outfall #001-No Discharge

Outfall #002

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
CADMIUM, TOTAL RECOVERABLE	µg/L	2,3	0.9		0.5	YES	0.6/0.3
COPPER, TOTAL RECOVERABLE	µg/L	2,3	34.3		21.1	YES	20.7/6.9
LEAD, TOTAL RECOVERABLE	µg/L	2,3	28.0		13.9	YES	10.4/3.5
ZINC, TOTAL RECOVERABLE	µg/L	2,3	272.0		128.5	YES	179/64
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Dissolved Oxygen Policy | 12. Antidegradation Review |

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

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 204 mg/L is used to calculate water quality criteria.

METAL	CONVERSION FACTORS	
	CHRONIC	ACUTE
Cadmium	0.850	0.760
Copper	0.690	0.520
Lead	0.320	0.170
Zinc	0.830	0.790

Conversion factor values supplied by the permittee via a dissolved metals translator study. This study provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department.

- **Cadmium, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 0.4 µg/L, Acute Criteria = 9.5 µg/L.
Chronic = $0.4/0.850 = 0.5$ µg/L
Acute = $9.5/0.760 = 12.5$ µg/L

Chronic

$$WLA_c = 0.5 \text{ } \mu\text{g/L}$$

Acute

$$WLA_a = 12.5 \text{ } \mu\text{g/L}$$

$$LTA_c = 0.5(0.527) = 0.3 \text{ } \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$LTA_a = 12.5(0.321) = 4.0 \text{ } \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$MDL = 0.3(3.11) = 0.9 \text{ } \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$AML = 0.3(1.55) = 0.5 \text{ } \mu\text{g/L}$$

[CV = 0.6, 95th Percentile, n = 4]

- **Copper, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 16.5 µg/L, Acute Criteria = 26.3 µg/L.
Chronic = $16.5/0.690 = 23.9$ µg/L
Acute = $26.3/0.520 = 50.6$ µg/L

Chronic

$$WLA_c = 23.9 \text{ } \mu\text{g/L}$$

Acute

$$WLA_a = 50.6 \text{ } \mu\text{g/L}$$

$$LTA_c = 23.9(0.662) = 15.8 \text{ } \mu\text{g/L}$$

[CV = 0.373, 99th Percentile]

$$LTA_a = 50.6(0.461) = 23.3 \text{ } \mu\text{g/L}$$

[CV = 0.373, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$MDL = 15.8(2.17) = 34.3 \text{ } \mu\text{g/L}$$

[CV = 0.373, 99th Percentile]

$$AML = 15.8(1.33) = 21.1 \text{ } \mu\text{g/L}$$

[CV = 0.373, 95th Percentile, n = 4]

- **Lead, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 5.4 µg/L, Acute Criteria = 139 µg/L.
Chronic = $5.4/0.320 = 16.9$ µg/L
Acute = $139.0/0.170 = 817.6$ µg/L

Chronic

$$WLA_c = 16.9 \text{ } \mu\text{g/L}$$

Acute

$$WLA_a = 817.6 \text{ } \mu\text{g/L}$$

$$LTA_c = 16.9 (0.524) = 8.9 \text{ } \mu\text{g/L}$$

[CV = 0.607, 99th Percentile]

$$LTA_a = 817.6(0.318) = 260.0 \text{ } \mu\text{g/L}$$

[CV = 0.607, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$$MDL = 8.9(3.15) = 28.0 \text{ } \mu\text{g/L}$$

[CV = 0.607, 99th Percentile]

$$AML = 8.9(1.56) = 13.9 \text{ } \mu\text{g/L}$$

[CV = 0.607, 95th Percentile, n = 4]

- **Zinc, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 215 µg/L, Acute Criteria = 215 µg/L.
Chronic = 215/0.830 = 259.0 µg/L
Acute = 215/0.790 = 272.2 µg/L

Chronic

$$WLA_c = 259 \mu\text{g/L}$$

Acute

$$WLA_a = 272.2 \mu\text{g/L}$$

$$LTA_c = 259.0(0.493) = 127.6 \mu\text{g/L}$$

[CV = 0.673, 99th Percentile]

$$LTA_a = 272.2(0.291) = 79.1 \mu\text{g/L}$$

[CV = 0.673, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

$$MDL = 79.1(3.44) = 272.0 \mu\text{g/L}$$

[CV = 0.673, 99th Percentile]

$$AML = 79.1(1.62) = 128.51 \mu\text{g/L}$$

[CV = 0.673, 95th Percentile, n = 4]

Outfall 002 Categorical Effluent Limits, Best Conventional Pollutant Control Technology (BCT)

Categorical effluent limits represent minimum technology based standards. This facility combines process wastewater from milling of ores and process wastewater from mine dewatering. By applying the more stringent of the two technology based effluent limitations, compliance with the less stringent [40 CFR 440.102(a)] Technology Based Effluent Limits are assured.

Part 440 - Ore Mining and Dressing Point Source Category

Subpart J - Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory

40 CFR 440.102(b)

Effluent Characteristic	Maximum for any 1 day	Average of daily values for 30 consecutive days
TSS.....	30.0	20.0
Cu.....	0.30	0.15
Zn.....	1.0	0.5
Pb.....	0.6	0.3
Hg.....	0.002	0.001
Cd.....	0.10	0.05
pH.....	(\1)	(\1)

\1\ Within the range 6.0 to 9.0

Comparison of Water Quality Based Effluent Limits and Categorical Limits

A comparison has been made of all calculated water quality based effluent limits and the categorical effluent limits. The most protective limit below has been incorporated into this permit.

Effluent Parameter	Water Quality Based Effluent Limit	Categorical Limit
Total Suspended Solids (mg/L)	100/50	30/20
Copper, Total Recoverable (µg/L)	34.3/21.1	300/150
Zinc, Total Recoverable (µg/L)	272.0/128.5	1,000/500
Lead, Total Recoverable (µg/L)	28.0/13.9	600/300
Mercury, Total Recoverable (µg/L)	N/A	2/1
Cadmium, Total Recoverable (µg/L)	0.9 / 0.5	N/A
pH (SU)	6.5 - 9.0	6.0-9.0

OUTFALLS #005, #006, #007, #008, #009, #010, #011, #012, #013, AND #014 – DERIVATION AND DISCUSSION OF LIMITS:

These outfalls are lysimeters to monitor the drip irrigation field for wastewater generated and land applied via subsurface irrigation from Outfall #001. Since this wastewater treatment system is in a losing stream area, pollutants of concern are proposed to be monitored for protection of shallow groundwater and any migration of treated effluent that may reach the receiving stream.

- **Cadmium, Total Recoverable.** Monitoring only requirement is being established for this operating permit. Monitoring for cadmium is included to determine whether “reasonable potential” to exceed water quality standards exists after irrigation begins. Quarterly sampling is the minimum frequency to yield sufficient data points to perform a reasonable potential analysis at the end of the permit cycle.
- **Lead, Total Recoverable.** Monitoring only requirement is being established for this operating permit. Monitoring for lead is included to determine whether “reasonable potential” to exceed water quality standards exists after irrigation begins. Quarterly sampling is the minimum frequency to yield sufficient data points to perform a reasonable potential analysis at the end of the permit cycle.
- **Zinc, Total Recoverable.** Monitoring only requirement is being established for this operating permit. Monitoring for zinc is included to determine whether “reasonable potential” to exceed water quality standards exists after irrigation begins. Quarterly sampling is the minimum frequency to yield sufficient data points to perform a reasonable potential analysis at the end of the permit cycle.
- **Nitrate.** Monitoring only requirement is being established for this operating permit. Monitoring for nitrate is included to determine whether “reasonable potential” to exceed water quality standards exists after irrigation begins. Quarterly sampling is the minimum frequency to yield sufficient data points to perform a reasonable potential analysis at the end of the permit cycle.

OUTFALL #015 – DERIVATION AND DISCUSSION OF LIMITS:

Emergency overflow outfall #0015. Storm water runoff within the plant site is currently collected in a sump and is pumped back at a rate of 1000 gallons per minute to the tailings impoundment. A storm water holding basin is being proposed to store storm water and expand the pump back capabilities to 4000 gallons per minute. This will reduce the number of overflows from the storm water collection sump and pollutant load to the stream. In the event of an overflow, monitoring only for the parameters of concern (Flow, Total Suspended Solids, pH – Units, Total Hardness, Cadmium- Total Recoverable, Copper - Total Recoverable, Lead - Total Recoverable, Zinc - Total Recoverable) are proposed to determine the frequency and extent of emergency overflows to be evaluated during the next permit cycle. The facility will normally be operated in a no-discharge manner unless flows exceed pumping capacity. Monitoring and limitations are based on 40 CFR 440 Subpart L.

Part VI – 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, issues a modified permit subject to certain effluent limitations, and special conditions contained herein and within the operating permit.

PUBLIC NOTICE:

The Department issued public notice of a draft operating permit. The public comment period was provided for not less than 30 days. The construction of Septic tanks/Subsurface Drip Irrigation has been completed.

DATE OF FACT SHEET: 10-17-11

COMPLETED BY:

CURT B. GATELEY, CHIEF
NPDES PERMITS UNIT
PERMITTING AND ENGINEERING SECTION
WATER PROTECTION PROGRAM
(573) 526-1155
curtis.gateley@dnr.mo.gov

DATE OF AMENDED FACT SHEET FOR CONSTRUCTION AND FINAL ISSUANCE:

SEPTEMBER 4, 2012, JANUARY 2, 2013.

AMENDED BY:

Michael Hefner, Environmental Engineer, EIT
Southeast Regional Office

FINALIZED BY:

Refaat H. Mefrakis, P.E.
Chief of Engineering
Water Protection Program
Refaat.Mefrakis@dnr.mo.gov

APPENDIX A – RPA RESULTS:

OUTFALL 002 ONLY.

CONSTITUENT (µg/L)	CMC	RWC ACUTE	CCC	RWC CHRONIC	REASONABLE POTENTIAL	# OF SAMPLES	MEAN	STANDARD DEVIATION	CV
CADMIUM, TOTAL RECOVERABLE	18.5	2.5	0.6	2.5	YES	54	2.5	0.0	0.0
COPPER, TOTAL RECOVERABLE	19	12.3	9.5	12.3	YES	54	3.7	6.647	0.373
LEAD, TOTAL RECOVERABLE	109	539	4	539	YES	51	58.9	96.409	0.607
MERCURY, TOTAL RECOVERABLE	2.4	0.3	0.5	0.3	NO	3	-	-	-
ZINC, TOTAL RECOVERABLE	176	130	161	130	YES	54	85.2	119	0.673

Resulting Multipliers

CONSTITUENT (µg/L)	LTA _C	LTA _A	MDL	AML
CADMIUM, TOTAL RECOVERABLE	0.527	0.321	3.11	1.55
COPPER, TOTAL RECOVERABLE	0.662	0.461	2.17	1.33
LEAD, TOTAL RECOVERABLE	0.524	0.318	3.15	1.56
ZINC, TOTAL RECOVERABLE	0.493	0.291	3.44	1.62

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2).

A more detailed version, including calculations of this RPA, is available upon request.