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-0098752
Owner:	Missouri Mining Investments, LLC
Address:	1530 South 2nd Street, St. Louis, MO 63104
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Former Madison Mine
Facility Address:	1050 County Road 263, Fredericktown, MO 63645
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

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

FACILITY DESCRIPTION

Industrial – Mining, SIC #1031, 1629; inactive subsurface metals mine site, formerly engaged in lead and cobalt subsurface mining. See page 2 for allowed discharges and outfall specific descriptions.

This permit only authorizes: stormwater runoff from the inactive site, seep discharges identified at both outfalls, and land application of pumped groundwater to old tailings areas. This permit does not authorize: discharge of wastewater from ongoing mining activities, or any other activities including but not limited to: mine dewatering, pit dewatering, milling, refining, wastewater from reprocessing of mine tailings, or discharge from land application areas.

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

February 1, 2019 — Effective Date

November 1, 2019 — Revised Date

Edward B. Galbraith, Director, Division of Environmental Quality

September 30, 2021 — Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (CONTINUED)

OUTFALL #001 – continuous dam toe/blanket drain dry weather discharge; intermittent stormwater runoff from D tailing piles, unvegetated areas, and areas adjacent to Tollar Branch; and land disturbance stormwater runoff.

Legal Description:	Landgrant 3089, Madison County
UTM Coordinates:	X = 740253, Y = 4158471
Receiving Stream:	Tollar Branch (C)
First Classified Stream and ID:	8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No.:	08020202-0102
Design Flow:	4.0 MGD
Average Flow:	Dependent upon precipitation

OUTFALL #002 – continuous groundwater seepage, and intermittent discharge from metallurgical (Met) pond; (stormwater runoff from A, B, C, and E tailings piles); areas adjacent to the tributary to Saline Creek; and discharge of land disturbance stormwater runoff.

Legal Description:	Landgrant 2073, Madison County
UTM Coordinates:	X = 740254, Y = 4159553
Receiving Stream:	Tributary to Saline Creek
First Classified Stream and ID:	Saline Creek (P) (2859) (TMDL)
USGS Basin & Sub-watershed No.:	08020202-0102
Design Flow:	2.5 MGD
Average Flow:	Dependent upon precipitation

OUTFALL # 003 – eliminated by plugging in 2002

INSTREAM MONITORING – eliminated in 2008

PERMITTED FEATURE #004 – Land Application Areas for Dust Suppression; added renewal 2018; runoff from these areas is prohibited. Areas included (see map in fact sheet) are: A through E tailings areas, outfall #002 remediation area, and roadways.

Legal Description:	Landgrant 2073, Madison County
UTM Coordinates:	X = 740549, Y = 4158318
USGS Basin & Sub-watershed No.:	08020202-0102
Wastewater	
Application Rate Basis:	Hydraulic Loading
Crops and Vegetation:	n/a – tailings area
Equipment Type:	sprinklers/hose/truck with nozzles
Field Slopes (%):	varies; max 4:1
Soil Permeability (inches per hour):	unknown, tailings are porous; land disturbance areas
Irrigation Volume (max gallons per year):	105,120,000 gallons at 200 gpm
Irrigation Areas (acres):	about 200 acres

PERMITTED FEATURE #005 – Earthen basin; no discharge permissible. Added 2019 modification. Small scale (100 tons/day) tailings processing plant to reclaim metals from the trailing areas. Process wastewater will be recycled for re-use in the plant. Processing wastewater will consist of the tailings slurry and will contain low levels of metals and residual chemicals from the froth floating process. These chemicals decompose quickly in sunlight and are expected to dissipate in the recycling basin. The pH of wastewater within the basin is expected to be in the range of 7.0 – 7.5. Treatment: settling, land applied, no discharge.

Legal Description:	Landgrant 2073, Madison County
UTM Coordinates:	X = 740682, Y = 4158464
Receiving Stream:	Tributary to Saline Creek
First Classified Stream and ID:	Saline Creek (P) (2859) (TMDL)
USGS Basin & Sub-watershed No.:	08020202-0102
Design Flow:	0 discharge

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

OUTFALLS #001 & #002 *seeps and stormwater*	**TABLE A-1 INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in Table A-2 must be achieved as soon as possible but no later than **February 1, 2021**. These interim effluent limitations are effective beginning **February 1, 2019** and remain in effect through **January 31, 2021** or as soon as possible. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:						
EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
PHYSICAL						
Flow	MGD	*		*	once/month	24 hr. total
CONVENTIONAL						
pH Ω	SU	6.5 to 9.0		6.5 to 9.0	once/month	grab
Total Suspended Solids	mg/L	45		30	once/month	grab
METALS						
Arsenic, Total Recoverable	µg/L	*		*	once/month	grab
Cadmium, Total Recoverable ▼	µg/L	*		*	once/month	grab
Cobalt, Total Recoverable	µg/L	1103		817	once/month	grab
Copper, Total Recoverable ▼	µg/L	26		13	once/month	grab
Lead, Total Recoverable ▼	µg/L	188		94	once/month	grab
Nickel, Total Recoverable	µg/L	818		407	once/month	grab
Zinc, Total Recoverable	µg/L	210		104	once/month	grab
OTHER						
Chloride	mg/L	*		*	once/month	grab
Sulfate	mg/L	*		*	once/month	grab
Chloride plus Sulfate	mg/L	1000		1000	once/month	grab
Cyanide, Total	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE DECEMBER 28, 2019. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
OTHER						
Whole Effluent Toxicity, Acute See Special Condition #1	TU_a	1.0			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE NEXT REPORT IS DUE JANUARY 28, 2020.						

* Monitoring requirement only

Ω The facility will report the minimum and maximum values. pH is not to be averaged.

▼ The facility must use analytical method 200.8 or other 40 CFR 136 compliant method with same or lower detection limit for this parameter; SW-846 methods are not compliant with terms and conditions of NPDES permits

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

OUTFALLS #001 & #002 *seeps and stormwater*	**TABLE A-2** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **February 1, 2021** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
PHYSICAL						
Flow	MGD	*		*	once/month	24 hr. total
CONVENTIONAL						
pH Ω	SU	6.5 to 9.0		6.5 to 9.0	once/month	grab
Total Suspended Solids	mg/L	45		30	once/month	grab
METALS						
Arsenic, Total Recoverable	µg/L	*		*	once/month	grab
Cadmium, Total Recoverable ▼	µg/L	0.5		0.2	once/month	grab
Cobalt, Total Recoverable	µg/L	1103		693	once/month	grab
Copper, Total Recoverable ▼	µg/L	15.3		5.6	once/month	grab
Lead, Total Recoverable ▼	µg/L	6.5		2.2	once/month	grab
Nickel, Total Recoverable	µg/L	80.9		49.9	once/month	grab
Zinc, Total Recoverable	µg/L	130.2		87.0	once/month	grab
OTHER						
Chloride	mg/L	*		*	once/month	grab
Sulfate	mg/L	*		*	once/month	grab
Chloride plus Sulfate	mg/L	1000		1000	once/month	grab
Cyanide, Total	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MARCH 28, 2021. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
OTHER						
Whole Effluent Toxicity, Acute See Special Condition #1	TU_a	1.0			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2021.						

PERMITTED FEATURE #005 *No discharge holding basin*	**TABLE A-2** **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**					
The permittee is not authorized to discharge from this feature. The final requirements shall become effective on **November 1, 2019**, and remain in effect until expiration of the permit. This feature shall be monitored and operationally controlled by the permittee as specified below:						
MONITORING PARAMETERS	UNITS	MONITORING REQUIREMENTS				
		DAILY MINIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: OM						
PHYSICAL						
Freeboard (minimum)	feet	2		*	once/month	measured
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE DECEMBER 28, 2019. NO DISCHARGES ARE AUTHORIZED FROM THIS FEATURE.						
SEE LAND APPLICATION CONDITION E. 5 FOR ANNUAL SUBMISSION REQUIREMENTS.						

B. SCHEDULE OF COMPLIANCE

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

1. Within six months of the effective date of this permit, the permittee shall report progress made in attaining compliance with the final effluent limits.

2. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from effective date. The first report is due February 1, 2020.

3. Within 2 years of the effective date of this permit, the permittee shall attain compliance with the final effluent limits at outfall #001 and outfall #002, for total recoverable cadmium, total recoverable copper, total recoverable lead, total recoverable cobalt, total recoverable nickel, and total recoverable zinc.

C. STANDARD CONDITIONS

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

D. SPECIAL CONDITIONS

1. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows: Outfall #001 & Outfall #002 (interim)
   (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
      - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
      - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
   (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
   (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
   (d) The Allowable Effluent Concentration (AEC) for this facility is 100%
   (e) The dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
   (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
   (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent (LC_{50}) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.
   (h) Accelerated Testing Trigger: If the regularly scheduled acute WET test exceeds the TU_a limit, the permittee shall conduct accelerated follow-up WET testing as prescribed in the following conditions. Results of the follow-up accelerated WET testing shall be reported in TU_a. This permit requires the following additional toxicity testing if any one test result exceeds a TU_a limit.
      (1) A multiple dilution test shall be performed for both test species within 60 calendar days of becoming aware the regularly scheduled WET test exceeded a TU_a limit, and once every two weeks thereafter until one of the following conditions are met:
         i. Three consecutive multiple-dilution tests are below the TU_a limit. No further tests need to be performed until next regularly scheduled test period.
         ii. A total of three multiple-dilution tests exceed the TU_a limit.
      (2) Follow-up tests do not negate an initial test result.
      (3) The permittee shall submit a summary of all accelerated WET test results for the test series along with complete copies of the laboratory reports as received from the laboratory within 14 calendar days of the availability of the third test exceeding a TU_a limit.

D. SPECIAL CONDITIONS (CONTINUED)

(i) TIE/TRE Trigger: The following shall apply upon the exceedance of the TU_a limit in three WET tests. The permittee should contact the Department within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact the Department upon the third follow up test exceeding a TU_a limit, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE within 60 calendar days of the date of the automatic trigger or the Department's direction to perform either a TIE or TRE. The plan shall be based on EPA Methods and include a schedule for completion. This plan must be approved by the Department before the TIE or TRE is begun.

2. Changes in Discharges of Toxic Pollutants
In addition to the reporting requirements under §122.41(1), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
   (a) That an activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile;
      (3) Five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol;
      (4) One milligram per liter (1 mg/L) for antimony;
      (5) Five (5) times the maximum concentration value reported for the pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
      (6) The notification level established by the department in accordance with 40 CFR 122.44(f).
   (b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
      (1) Five hundred micrograms per liter (500 µg/l);
      (2) One milligram per liter (1 mg/l) for antimony;
      (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with §122.21(g)(7).
      (4) The level established by the Director in accordance with §122.44(f).

3. The requirements within this permit are minimum requirements. This permit does not authorize the permittee to fail to comply with any other lawful requirement by any DNR division or the EPA.

4. Electronic Discharge Monitoring Report (eDMR) Submission System
   (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
   (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
      (1) Any additional report required by the permit excluding bypass reporting.
      After such a system has been made available by the department, required data shall be directly input into the system by the next report due date.
   (c) Other actions. The following shall be submitted electronically after such a system has been made available by the department:
      (1) General Permit Applications/Notices of Intent to discharge (NOIs);
      (2) Notices of Termination (NOTs);
      (3) No Exposure Certifications (NOEs);
      (4) Low Erosivity Waivers and Other Waivers from Stormwater Controls (LEWs); and
      (5) Bypass reporting.
   (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.
   (e) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

D. SPECIAL CONDITIONS (CONTINUED)

5. The facility's SIC code is found in 40 CFR 122.26(b)(14) and 10 CSR 20-6.200(2) hence shall implement a Stormwater Pollution Prevention Plan SWPPP which must be prepared and implemented upon permit issuance. The SWPPP must be kept on-site and should not be sent to the department unless specifically requested. The SWPPP must be reviewed and updated every year or as site conditions change (see Part III: Antidegradation Analysis and SWPPP sections in the fact sheet). The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in: *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002) published by the EPA in February 2009 (www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf). The purpose of the SWPPP and the Best Management Practices (BMPs) listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.
   The SWPPP must include:
   (a) A listing of specific contaminants and their control measures (or BMPs) and a narrative explaining how BMPs are implemented to control and minimize the amount of contaminants potentially entering stormwater.
   (b) A map with all outfalls identified.
   (c) The SWPPP must include a schedule for once per month site inspections and brief written reports. The inspection report must include precipitation information for the entire period since last inspection, as well as observations and evaluations of BMP effectiveness. Throughout coverage under this permit, the facility must perform ongoing SWPPP review and revision to incorporate any site condition changes.
      i. Operational deficiencies must be corrected within seven (7) calendar days.
      ii. Minor structural deficiencies must be corrected within fourteen (14) calendar days.
      iii. Major structural deficiencies must be reported to the regional office within seven (7) days of discovery. The initial report shall consist of the deficiency noted, the proposed remedies, the interim or temporary remedies (including the general timing of the placement of the interim measures), and an estimate of the timeframe needed to wholly complete the repairs or construction. The permittee will work with the regional office to determine the best course of action, including but not limited to temporary structures to control stormwater runoff. The facility shall correct the major structural deficiency as soon as reasonably achievable.
      iv. All actions taken to correct the deficiencies shall be included with the written report, including photographs.
      v. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to department and EPA 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 the department.
   (f) See additional requirements in Section F #3.

6. Permittee shall adhere to the following minimum Best Management Practices (BMPs):
   (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of stormwater 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 stormwater or provide other prescribed BMPs such as plastic lids and/or portable spill pans to prevent the commingling of stormwater with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater. Any spills should be noted in the SWPPP.
   (d) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
   (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property.
   (f) See additional requirements in F #1.

7. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the CWA section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under 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 contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or controls any pollutant not limited in the permit.

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

D. SPECIAL CONDITIONS (CONTINUED)

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

10. Reporting of Non-Detects
    (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
    (b) The permittee shall not report a sample result as "non-detect" without also reporting the detection limit of the test. Reporting as "non-detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
    (c) The permittee shall report the "non-detect" result using the less than sign and the minimum detection limit (e.g. <10).
    (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
    (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
    (f) When calculating monthly averages, one-half of the minimum detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (C).

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

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

13. Storage Basin Minimum BMPs.
    (a) To maintain structural integrity, basins shall be inspected at least monthly, the berms of the storage basin(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage, any leaks or issues shall be noted.
    (b) The facility shall ensure adequate provisions are provided to prevent surface water intrusion and run-in into the storage basin(s), to divert stormwater runoff from around the storage basin(s), and protect embankments from erosion.
    (c) The minimum and maximum operating water levels for the storage basin(s) shall be clearly marked.
    (d) Each storage basin shall be operated and maintained to achieve and maintain no discharge status; including maximum water elevations up to the operating level of the 1-in-10 year or 25-year, 24-hour storm events.
    (e) The minimum storage capacity for the basin shall be 75 days per 10 CSR 20-8.200(6)(C)1.A. for Madison County facilities.
    (f) Storage basins shall be lowered to the minimum operating level prior to November 30 each year.
    (g) At least one sign shall appear on each side of each basin. Minimum wording shall be "WASTEWATER – KEEP OUT", in letters at least 2 inches high.
    (h) It is a violation of this permit to place material in the emergency spillway or otherwise cause it to cease to function properly, as this may result in a catastrophic failure of the storage basin.

E. LAND APPLICATION CONDITIONS

1. The facility shall inspect for potential runoff of the land application areas twice daily for potential discharge from land application activities. It is a violation of this permit to allow a dry-weather discharge from land application areas to leave the facility property or enter waters of the state. Solids shall not be land applied.

2. Land Application Equipment.
   (a) Spray application equipment shall minimize the formation of aerosols.
   (b) Provisions shall be made for draining pipes and other equipment to prevent freezing.
   (c) Portable pumping unit or permanent pumping installation.
      (1) The intake shall be screened so as to minimize clogging of the sprinkler nozzle or distribution system orifices.
      (2) For use of a portable pump, a stable platform and flexible intake line with flotation device to control depth of intake will be acceptable.
   (d) Automatic or semi-automatic controls should be considered for shut off of the system after a prescribed wastewater application period. Manual start-up of the application system is recommended.
   (e) Land application equipment shall be visually inspected daily during land application to check for equipment malfunctions and leaks. The application system shall be operated so as to provide uniform distribution of water over the entire land application site and shall be capable of applying the annual design flow during an application period of less than 100 days or 800 hours per year. Land application equipment shall be calibrated at least once annually.

3. Land Application Fields.
   (a) Public Access Restrictions. This permit does not authorize application of wastewater to public use areas.
   (b) No land application shall occur when the soil is frozen, snow covered, or saturated. There shall be no application during a precipitation event or if a precipitation event that is likely to create runoff, or is forecasted to occur within 24 hours of a planned application.
   (c) Land application shall occur only during daylight hours.
   (d) Land application areas shall be checked twice daily during land application for runoff. Sites that utilize spray irrigation shall monitor for the drifting of spray across property lines.
   (e) Setback distances from sensitive features. There shall be no land application within:
      (1) 300 feet of any drinking water well, sinkhole, losing stream, wetland, cave entrance, drinking water supply impoundment, or stream intake;
      (2) 150 feet of an occupied residence, public building, or public use area;
      (3) 50 feet of gaining perennial or intermittent stream, public or privately owned pond or lake;
      (4) 50 feet of property line or public road.
   (f) Wastewater application on slopes exceeding 10%, the hourly application rate shall not exceed one-half (1/2) the design sustained permeability and in no case shall exceed one-half (1/2) inch per hour.

4. Record Keeping
   (a) A daily land application log shall be prepared and kept on file at the permittee office location for each application site and at a minimum include: dates of application, weather condition (sunny, overcast, raining, below freezing, etc…), soil moisture condition, and application method.
   (b) A record of monthly visual storage structure inspections shall be maintained.
   (c) A record of land application equipment inspections and calibrations as well as land application field inspections shall be maintained.
   (d) All records and monitoring results shall be maintained for at least five years and shall be made available to the department upon request.

5. Annual Report on Land Application. An annual report is required in addition to other reporting requirements under Section A of this permit. The annual report shall be submitted by January 28th of each year. The report shall include, but is not limited to, a summary of the following:
   (a) Record of maintenance and repairs 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 storage structure discharged during the year, the discharge flow, reason the discharge occurred and effluent analysis performed.
   (c) A summary for each area used for land application showing number of acres used, number of days application occurred, and total amount of wastewater applied (gal./acre).
   (d) Narrative summary of any problems or deficiencies identified, corrective action taken, and improvements planned.
   (e) Annual TCLP Report: the facility shall provide results for at least one Toxicity Characteristic Leaching Procedure (TCLP) sample of the wastewater in basin #005 at the site for the eight RCRA metals (D004-D011), and for corrosivity (D002).

F. LAND DISTURBANCE

1. Minimum Best Management Practices (BMPs) must prevent discharges from causing or contributing to an exceedance of water quality standards including general criteria. The pollution prevention measures should be described in the SWPPP; at a minimum such measures must be designed, installed, implemented, and maintained to:
   (a) Minimize the exposure of building materials, building products, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater.
   (b) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of stormwater from these substances.
   (c) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
   (d) Control stormwater volume and velocity at the facility to minimize soil erosion;
   (e) Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
   (f) Minimize the amount of soil exposed during construction activity;
   (g) Minimize the disturbance of steep slopes;
   (h) Minimize sediment discharges from the project. Design, install and maintain erosion and sediment controls that address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle size expected to be present on the project;
   (i) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and filtering, unless infeasible; and
   (j) Unless infeasible, preserve topsoil.
   (k) Capture or treat a 2-year, 24-hour storm event. A 2-year, 24-hour storm event shall be determined for the project location using the National Oceanic and Atmospheric Administration's National Weather Service Atlas 14 which can be located at https://hdsc.nws.noaa.gov/hdsc/pfds/ or other suitable resource.
   (l) Installation of BMPs necessary to prevent soil erosion at the project boundary must be complete prior to the start of all phases of construction, in areas where stormwater runoff may freely leave the site.
   (m) Install sediment controls along any perimeter areas of the project that will receive pollutant discharges.
   (n) Remove any sediment per the manufacturer's instructions or before it has accumulated to one-half of the above-ground height of any perimeter control.
   (o) For projects where perimeter controls are infeasible, other practices shall be implemented to minimize discharges to perimeter areas of the project.
   (p) BMPs shall be maintained and remain in effective operating condition during the entire duration of the project, with repairs made within the timeframe specified elsewhere in this permit, until final stabilization has been achieved.
   (q) Minimize sediment trackout from the project.
   (r) Restrict vehicle traffic to properly designed and controlled exit points.
   (s) Use appropriate stabilization techniques at all points that exit onto paved roads.
   (t) Remove any sediment that has been tracked out within the same business day or by the end of the next business day if trackout occurs on a non-business day.
   (u) Store all paint, solvents, petroleum products, and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) according to BMPs such as plastic lids and/or portable spill pans to prevent the commingling of stormwater with container contents. Materials exposed to precipitation shall be stored in watertight, structurally sound, closed containers. 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. All containers shall be inspected for leaks or spillage during the inspection of BMPs. Any spills should be noted in the SWPPP.
   (v) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property to comply with general water quality criteria, effluent limits, or benchmarks.
   (w) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

F. LAND DISTURBANCE (CONTINUED)

(x) Provide good housekeeping practices on the site to keep trash from entry into waters of the state. Good housekeeping practices shall be maintained at all times to keep waste from entering waters of the state. Solid and hazardous waste management include providing trash containers and regular site cleanup for proper disposal of solid waste such as scrap building material, product/material shipping waste, food containers and cups, and providing containers and proper disposal of waste paints, solvents and cleaning compounds. The provision of portable toilets for proper disposal of sanitary sewage and the storage of construction materials should be kept away from drainage courses and low areas.

(y) All fueling facilities present shall at all times adhere to applicable federal and state regulations concerning underground storage, above ground storage, secondary containment, and dispensers.

(z) To protect the general criteria found at 10 CSR 20-7.031(4), before releasing water accumulated in secondary containment areas, it must be examined for hydrocarbon odor and presence of sheen. If the presence of odor or sheen is indicated, the water shall be tested for oil and grease, benzene, toluene, ethylbenzene, and xylene using 40 CFR part 136 methods. If pollutant levels are below the most protective, applicable standards for the receiving stream found in 10 CSR 20-7.031 Table A, the water may be discharged. If pollutant levels exceed the applicable standards in 10 CSR 20-7.031 Table A, suitable water may be treated in the on-site wastewater treatment facility or disposed of at an off-site facility. Records of all testing and treatment of water accumulated in secondary containment shall be stored in the SWPPP to be available on demand to the Department and EPA personnel.

(aa) Hazardous wastes transported, stored, or used for maintenance, cleaning, or repair shall be managed according to the provisions of the Missouri Hazardous Waste Laws and Regulations.

(bb) The manual *Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri*, published by the Missouri Department of Natural Resources available at: http://www.dnr.mo.gov/env/wpp/wpcp-guide.htm is acceptable for the selection of appropriate BMPs; other guidance publications may be used to select appropriate BMPs.

2. Unauthorized Discharges and Activities. This permit does not authorize:

(a) Process water or wastewater discharges not specifically allowed in this permit.

(b) Land application of sludges.

(c) Discharge of domestic wastewaters, including gray waters.

(d) Discharge of sheen or oily residue.

(e) Discharge of soaps, foam, or solvents.

(f) Placement of fill materials in flood plains, the obstruction of stream flow, directing stormwater across private property not owned or operated by the permittee, or changing the channel drainage within waters of the state. The land disturbance conditions address only the quality of the stormwater runoff and the minimization of off-site migration of sediments and other water contaminants.

(g) Land disturbance activity in jurisdictional waters of the United States as defined by the U.S. Army Corps of Engineers, unless the permittee has obtained the required Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and its associated Section 401 Water Quality Certification from the Department. Land disturbance activities may not begin in the affected waters of the United States until the required 404 permit and 401 certification have been obtained.

(h) Discharge of wastewater generated from air pollution control equipment to waters of the state, or the containment of scrubber water in ponds exposed to stormwater.

(i) Discharge of any hazardous material, oil, lubricant, solid waste, or other non-naturally occurring substance from the site, including fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

(j) Discharge of hazardous substances or petroleum products from an on-site spill, or handling, or disposal practices.

(k) Wash and/or rinse waters from concrete mixing equipment including ready mix concrete trucks, unless managed by an appropriate control. Any such pollutants must be adequately treated and addressed in the SWPPP, and cannot be discharged to waters of the state.

(l) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.

(m) This permit does not affect, remove, or replace any requirement of: the National Environmental Policy Act (NEPA), the Spill Prevention, Control and Countermeasure (SPCC) Rule, the Endangered Species Act (ESA); the National Historic Preservation Act; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); or the Resource Conservation and Recovery Act (RCRA). Determination of applicability to the above mentioned acts is the responsibility of the permittee.

(n) This permit does not supersede any requirement for obtaining project approval under an established local authority.

(o) The Department may require additional sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of contamination from activities at the site. If such an action is needed, the Department will specify in writing any sampling requirements, including such information as location, frequency, duration, and parameters.

F. LAND DISTURBANCE (CONTINUED)

3. This facility shall implement a Land Disturbance SWPPP (may be included with the site specific SWPPP) which must be prepared and employed upon permit issuance which incorporates site specific practices to best minimize industrial exposed stormwater, soil exposure, soil erosion, and the discharge of pollutants from industrial stormwater and land disturbance activities. This facility is required to design, install, and maintain effective stormwater, erosion, and sediment controls to minimize pollutant discharges. The permittee shall fully implement the provisions of the SWPPP required under this part as a condition of this permit and throughout the term of the permit. Either an electronic copy or a paper copy of the SWPPP must be accessible and made available as specified under the Records section of this permit. The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested. The SWPPP must be reviewed and updated every five years or as site conditions change. The permittee shall select, install, use, operate, and maintain appropriate and effective BMPs for the land disturbance project and all industrially exposed areas of the facility in accordance with the concepts and methods described in: *Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*, (Document number EPA 833-R-06-004 published by the United States Environmental Protection Agency (USEPA) May 2007) and *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002 published by the EPA February 2009) (www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf). The SWPPP must meet all requirements of this permit and at a minimum incorporate the following:
   (a) The SWPPP must:
      i. List and describe all outfalls. Additional stormwater outfalls must be added to this permit though permit modification.
      ii. Incorporate required information and practices identified below;
      iii. Incorporate erosion control practices specific to project conditions;
      iv. Provide for maintenance and adherence to the plan;
      v. Discuss whether or not a 404/401 Permit is required for the project; and
      vi. Name the person responsible for inspection, operation, and maintenance of BMPs.
      vii. Ensure the design, implementation, management, and maintenance of BMPs in order to prevent sediment and other pollutants in stormwater discharges associated with the land disturbance activities; compliance with the Missouri Water Quality Standards; and compliance with the terms and conditions of this permit.
   (b) The following information and practices shall be provided for in the SWPPP:
      i. Nature of the Industrial Activity, Construction Activity, Disturbance Activity, and Site Description: The SWPPP shall include facility and outfall information and shall have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs. The SWPPP briefly must describe the nature of the construction activity, including:
         1. The function of the project (e.g., remediation).
         2. The intended sequence and timing of activities that disturb the soils at the site.
         3. Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities including off-site borrow and fill areas.
      ii. Site Map: A general map with enough detail to identify the location of the construction site and waters of the State within one mile of the site. A second legible site map showing the site boundaries and outfalls identifying:
         1. Direction(s) of stormwater flow and approximate slopes anticipated after grading activities;
         2. Areas of soil disturbance and areas that will not be disturbed (or a statement that all areas of the site will be disturbed unless otherwise noted);
         3. Location of structural BMPs identified in the SWPPP;
         4. Locations where stabilization practices are expected to occur;
         5. Locations of off-site material, waste, borrow, or equipment storage areas;
         6. Locations of all waters of the state (including wetlands);
         7. Locations where stormwater discharges to a surface water; and
         8. Areas where final stabilization has been accomplished and no further permit requirements apply.
      iii. Selection of Temporary and Permanent BMPs: The permittee shall select appropriate BMPs for use at the site and list them in the SWPPP.
         1. The SWPPP shall require existing vegetation and trees to be preserved where practical.
         2. For surface waters of the state [10 CSR 20-7.031(1)(DD)] the permittee must:
            a. Provide and maintain a 50-foot undisturbed natural buffer;
            b. If less than 50 feet provide and maintain an undisturbed natural buffer supplemented by erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or
            c. If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
            d. Where retaining a buffer of any size, the buffer should be measured perpendicularly from any of the following points, whichever is further landward from the water:
               I. The ordinary high water mark of the water body, [33 CFR 328.3(c)(6)]; or
               II. The edge of the stream or river bank, bluff, or cliff, whichever is applicable.

F. LAND DISTURBANCE (CONTINUED)

iv. Description of BMPs: The SWPPP shall include a description of both structural and operational BMPs that will be used on the project.
   1. The SWPPP shall provide the following general information for each BMP used one or more times at the site:
      a. Physical description of the BMP;
      b. Site conditions that must be met for effective use of the BMP;
      c. BMP installation/construction procedures, including typical drawings; and
      d. Operation and maintenance procedures for the BMP.

   2. The SWPPP shall provide the following information for each specific instance where a BMP is to be installed:
      a. Whether the BMP is temporary or permanent;
      b. Where, in relation to other site features, the BMP is to be located;
      c. When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
      d. Site conditions that must be met before removal of the BMP if the BMP is not a permanent BMP.

v. Disturbed Areas:
   1. For soil disturbing activities that have been temporarily ceased on any portion of the project and will not resume for a period exceeding 14 calendar days:
      a. The permittee shall construct BMPs to establish interim stabilization; and
      b. Stabilization must be initiated immediately and completed within 14 calendar days.
   2. For soil disturbing activities that have been permanently ceased on any portion of the project, final stabilization of disturbed areas must be initiated immediately and completed within 14 calendar days. Allowances to the 14 day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. The use of allowances shall be documented in the SWPPP.
   3. Interim stabilization shall consist of well-established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution over an extended period of time. This may require adding more BMPs to an area than is normally used during daily operations. These BMPs may include a combination of sediment basins, check dams, sediment fences and mulch. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 4:1 (four feet horizontal to one foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee shall establish interim stabilization within seven days of ceasing operations on that part of the site.
   4. If vegetative stabilization measures are being implemented, stabilization is considered “installed” when all activities necessary to seed or plant the area are completed.

vi. Installation: The permittee/operator shall ensure the BMPs are properly installed at the locations and relative times specified in the SWPPP. Peripheral or border BMPs to control runoff from disturbed areas shall be installed or marked for preservation before general site clearing is started. Note that this requirement does not apply to earth disturbances related to initial site clearing and establishing entry, exit, and access of the site, which may require that stormwater controls be installed immediately after the earth disturbance. For phased projects, BMPs shall be properly installed as necessary prior to construction activities. Stormwater discharges from disturbed areas which leave the site shall pass through an appropriate sediment control measure such as a sedimentation basin, sediment traps, or silt fences prior to leaving the land disturbance site. A drainage course change shall be clearly marked on a site map and described in the SWPPP.

vii. Sedimentation Basins/Sediment Control: The SWPPP shall include a sedimentation basin for each drainage area as needed. The sedimentation basin shall be sized to treat a local 2-year, 24-hour storm. Accumulated sediment shall be removed from the basin when basin is 50% full or sooner. Utilize outlet structures that withdraw water from the surface when discharging from basins and impoundments unless infeasible. Discharges from the basin shall not cause scouring of the banks or bottom of the receiving stream. The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin. Where use of a sediment basin is infeasible, the SWPPP shall evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment delivery. These similarly effective BMPs shall be selected from appropriate BMP guidance documents authorized by this permit. The BMPs must provide equivalent water quality protection to achieve compliance with this permit. The SWPPP shall require both temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

viii. Roadways: Where applicable, upon installation of or connection to roadways, all efforts should be made to prevent the deposition of earth and sediment onto roadways through the use of proper BMPs. Stormwater inlets susceptible to receiving sediment from areas with active land disturbance shall have curb inlet protection. Where stormwater will flow off the end of where a roadway terminates, a sediment catching BMP such as gravel berm or silt fence shall be provided. Curb inlet protection shall be cleaned as needed when sediment accumulates to approximately 50% of the total BMP height.

ix. Dewatering: Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods. The SWPPP shall call for specific BMPs designed to treat water pumped from trenches and excavations and in no case shall this water be pumped off-site without being treated by the specified BMPs.

F. LAND DISTURBANCE (CONTINUED)

x. Amending/Updating the SWPPP: The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP at a minimum whenever the:
   1. Design, operation, or maintenance of BMPs is changed;
   2. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
   3. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
   4. Department notifies the permittee in writing of deficiencies in the SWPPP;
   5. SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or excessive sediment deposits in streams or lakes); and/or
   6. Department determines violations of water quality criteria may occur or have occurred.

xi. Designated Individuals: An individual shall be designated by the permittee/operator as the lead for environmental matters. The lead individual for environmental matters shall have a thorough and demonstrable knowledge of the site's SWPPP and sediment and erosion control practices in general. The lead individual for environmental matters or a designated inspector knowledgeable in erosion, sediment and stormwater control principles shall inspect all structures that function to prevent pollution of waters of the state.

xii. Inspections, Logs, and Reports: A qualified individual shall conduct regularly scheduled inspections. These inspections shall be conducted by a person who is responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. All installed BMPs and other pollution control measures for industrial stormwater and for disturbed areas that have not been finally stabilized, shall be inspected for proper installation, operation, and maintenance. All stormwater outfalls shall be inspected for evidence of erosion or sediment deposition. When practicable, the receiving stream shall also be inspected for 50 feet downstream of the outfall. Any structural, operational, or maintenance problems shall be noted in an inspection report and corrected as soon as possible but no more than seven calendar days after the inspection. All BMPs must be inspected in accordance to one of the two schedules listed below, and any changes to the frequency of inspections, including switching between the options listed below, must be documented in the SWPPP:
   1. At least once every seven calendar days and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased during a normal work day and within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday; or
   2. Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches of precipitation or greater, or the occurrence of runoff from snowmelt. To determine if a storm event of 0.25 inches or greater has occurred on your site, the responsible individual must either keep a properly maintained rain gauge on site, or obtain the storm event information from a weather station for the location.
   3. If inspections occur every 14 calendar days and there is a storm event at the site continuing for multiple days, and each day of the storm produces 0.25 inches or more of rain, the facility is required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.
   4. An individual must conduct an inspection within 24 hours once a storm event has produced 0.25 inches within a 24 hour period, even if the storm event is still continuing.
   5. The SWPPP must explain how the person responsible for erosion control will be notified when stormwater runoff occurs. If weather conditions prevent correction of BMPs within seven calendar days, the reasons for the delay must be documented (including pictures) and there must be a narrative explaining why the work cannot be accomplished within the seven day time period. The documentation must be filed with the regular inspection reports. The permittee shall correct the problem as soon as weather conditions allow. Areas on-site that have been finally stabilized must be inspected at least once per month.
   6. A log of each inspection and copy of the inspection report shall be kept readily accessible and must be available upon request by the Department. Electronic logs are acceptable as long as reports can be provided in a timely manner. If inspection reports are kept off-site, your SWPPP must indicate where they are stored. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so. The inspection report is to include the following minimum information:
      a. Inspector's name;
      b. Date of inspection, (time of inspection of each element is encouraged but not required);
      c. Observations relative to the effectiveness and condition of the BMPs;
      d. Actions taken or necessary to correct the observed problem; and
      e. Listing of areas where land disturbance operations have permanently or temporarily stopped.

xiii. Notification to All Contractors: The permittee shall be responsible for notifying each contractor or entity (including but not limited to utility crews and city employees or their agents) who will perform work that could impact stormwater runoff at the site of the existence of the SWPPP and what actions or precautions shall be taken while on-site to minimize the potential for erosion and the potential for damaging any BMP. The permittee is responsible for any damage a subcontractor may do to any established BMP and any subsequent water quality violation resulting from the damage.

F. LAND DISTURBANCE (CONTINUED)

xiv. Records: The permittee shall retain copies of this permit, the SWPPP, and all amendments for the site, results of any monitoring and analysis, and all site inspection records required by this permit. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years after final stabilization or permit termination; whichever is longer.

1. The permittee shall provide a copy of the SWPPP to the Department, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.
2. The permittee shall provide a copy of the SWPPP to those who are responsible for installation, operation, or maintenance of any BMP. The permittee, their representative, and/or the contractor(s) responsible for installation, operation, and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site. Electronic copies are acceptable.

Missouri Department of Natural Resources
Factsheet Addendum
For Construction Permit
#MO-0098752
Former Madison Mine

This addendum gives pertinent information regarding modification(s) to the above listed operating permit for a public comment process. An addendum is not an enforceable part of a Missouri State Operating Permit.

Part I – Proposed Construction

Facility Description: See original fact sheet

PERMITTED FEATURE #005 – metal processing wastewater holding basin for a tailing processing plant; added in 2019 modification.

Proposed construction is to build an earthen basin for the processing water.

Part II – Reason for the Modification

This operating permit is hereby modified to add a proposed metal processing wastewater holding basin.

The facility intends to process surface tailings for metals recovery. A small scale (100 tons/day) tailings processing plant is proposed to reclaim metals from the trailing areas. Process wastewater will be recycled for re-use in the plant. Proposed recycling basin (PERMITTED FEATURE #005) will be constructed to enable solids settling as part of the recycling process. Processing wastewater will consist of the tailings slurry and will contain low levels of metals and residual chemicals from the froth floating process. These chemicals decompose quickly in sunlight and are expected to dissipate in the recycling basin. The pH of wastewater within the basin is expected to be in the range of 7.0 – 7.5. Calculations and lab scale testing indicate a negative water balance during dry periods due to water losses through evaporation in the pond, 8% loss in the process concentrate, and losses in the process dryer. Stormwater will cause a positive water balance during wet periods. Excess water will be land applied as described in the Permitted Feature #004 to maintain the desired water level in the basin. Special conditions #D. 12. and 13. were added.

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

ANTIDEGRADATION:
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)], 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.

- ✓ No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge. The facility has disclosed the basin will be operated in a no-discharge fashion thereby making an antidegradation review not applicable.

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 that 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 the permit was from 7/26/2019-8/26/2019; one comment was received. The EPA commented the facility should assure the land applied wastewater was not hazardous waste in accordance with Missouri regulations. The permit writer added a condition to Section E of the permit to require this additional information. This information will be reviewed annually by the department to assure the application wastewater does not exhibit RCRA hazardous waste characteristics.

DATE OF ADDENDUM: OCTOBER 1, 2019

COMPLETED BY:

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0098752
FORMER MADISON MINE

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 stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified for less.

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

Part I. FACILITY INFORMATION

Facility Type:	Industrial; Major
Facility SIC Code(s):	1031 (lead and zinc ores), 1629 (land remediation)
Application Date:	03/06/2013
Modification Date:	10/10/2008
Expiration Date:	08/28/2013
Last Inspection:	05/31/2018 - not in compliance

FACILITY DESCRIPTION:
This site is an inactive metals mine site, formerly engaged in lead and cobalt mining. Mining, milling and refining operations ceased in 1961. This permit only authorizes stormwater runoff from remaining tailings piles from previous operations and the discharge from the seep which discharges through outfall #002. The seep discharge has been classified at constant, not intermittent, therefore monthly average limitations still apply. This permit does not authorize discharges from mining activities.

The Madison County Mines Site through Superfund is divided into seven Operable Units (OU). The Madison County Mines Site Operable Unit 2- Former Madison Mine consists of all mining and mine works locations and adjoining areas located immediately southeast of Fredericktown. Included in OU2 are the A, B, C, D and E tailings areas (historically known as the Madison Mine, all but the D tailings area was capped by Potentially Responsible Party); a metallurgical pond and sediment pond; remnants of an old mill and smelter and associated slag pile; head frame and abandoned shafts; a mine decline; a refinery complex; a remnant chat pile and mine dump; associated groundwater; surface water and sediments in Goose Creek and Tollar Branch Creek; the abandoned Black Mountain rail spur right-of-way through Fredericktown, and all other mine works locations and outflows affected by these past mining activities.

Missouri Mining Investment LLC purchased the mine from The Anschutz Mining Corporation, and currently owns this dormant lead and cobalt mining facility. The permit authorizes the discharge of stormwater and dam toe seep/dam blanket drain from outfall #001 into Tollar Branch and stormwater and seep from #002 into an unnamed tributary to Saline Creek. A discharge from outfall #003 into Goose Creek was eliminated when the mine entrance was closed. The underground mine still contains strategic reserves of cobalt.

The facility obtained a land disturbance permit, MORA1200, for the site. MORA1200 gives the Department permission to revoke the general permit when contaminated soils may be disturbed. As the general permit does not cover the current activities as described by the permittee, the permit writer has included land disturbance activities into this site specific permit and the permittee may terminate the general permit. The permittee indicated in an email dated 9/5/2018 that additional land disturbance outfalls would not be needed as only about 1/3 of the site is being disturbed; all on the western side of the facility; all stormwater should drain west to outfalls #001 and #002.

Lead deposits were first discovered in the Fredericktown area in 1700 at Mine LaMotte. Copper was first discovered at the Madison Mine in 1843. Underground mining and ore processing of copper, nickel, cobalt, and lead was conducted by various owners and operators over time. Underground mining began at the Madison Mine in 1847. Copper was the main ore mined during this time period. Copper mining ceased in 1849, but the mine was reopened during the Civil War years of 1860-1863 primarily for lead ore and

some copper. From 1901-1961 there were several different owners who mined for lead, copper, nickel, and in later years, cobalt. The froth flotation process was used to extract these metals.

In 1979 the past owner, the Anschutz Mining Corporation (AMC), purchased the mine as a potential source of cobalt from tailings as well as the underground resources. Cobalt is a strategic and critical metal used in many contemporary industrial and military applications. The United States is the world's largest consumer of cobalt, so much so, that the U.S. Government maintains significant quantities of cobalt metal in the National Defense Stockpile for military, industrial, and essential civilian use during a national emergency. A feasibility study to reopen the site was completed by AMC, but the project was postponed when the price of cobalt declined in the early 1980s.

In 1999, U.S. Cobalt Inc., a Denver, Colorado mineral exploration and development company, entered into an agreement with the AMC to "lease with the option to buy" the Madison Mine. U.S. Cobalt completed an internal economic scoping study and a due diligence confirmation drilling program on the property. By 2002, the low price paid for cobalt combined with U.S. Cobalt's failure to renegotiate the environmental indemnity agreement with AMC caused the AMC to terminate the exploration and "lease with the option to buy" agreement, subsequently canceling all of U.S Cobalt's rights to the property.

Since the mine is dormant at this time, the only discharge from the site has been stormwater runoff and seeps. Several areas of tailings have been capped with clay. A tailings pond is contained by a stabilized dam. Although these areas have been remediated and/or stabilized, stormwater runoff is still an area of concern and is regulated by effluent limitations at each outfall.

Outfall #001 is a discharge of stormwater from mine tailings area D adjacent to the dam and dam toe drain/blanket drain seep to Tollar Branch. The stormwater is routed around the tailings pond past an overflow area on either end of a tailings dam. The stormwater from either end of the tailings dam meet in the central part of the dam and flow into Tollar Branch. The dam seep and stormwater comingles prior to outfall #001 location.

Outfall #002 discharges from the mine tailings areas A, B, C, and E, discharge to the Met (metallurgical) pond, which discharges after settling. The Met pond was modified in 2002 to allow more detention time for the metals to precipitate to the bottom sediments instead of leaving the site via discharge. Outfall #002 discharges to an unnamed tributary to Saline Creek.

Outfall #003 was a former discharge point for the mine "decline" or entrance. With the exception of a brief period of mine de-watering by AMC in the early 1980s, the decline had been discharging untreated water into Goose Creek for approximately 30 years. At times, the discharge contributed the entire flow of Goose Creek. Outfall #003 was eliminated as a result of the closure of the mine decline (entrance) and accompanying air shaft in September of 2002. The closure was part of a Settlement Agreement issued by the Department. Sometime after the closure, the seep water from the former entrance re-surfaced within approximately 100 yards southeast of outfall #002.

Permitted Feature #004 was added at this renewal. The facility has determined a need for dust suppression water, when groundwater is pumped, it slows or eliminates the seep discharge from outfall #002. To do this, the facility will pump out of an existing well knows as DW-6 located near the mine which will serve to eliminate the seep flow. The water which is pumped out is discharged to the top of tailings and roadway areas for dust suppression.

The mine and property was purchased by the current owner, Missouri Mining Investments, LLC, on March 2, 2018.

PERMITTED FEATURES TABLE:

OUTFALL	AVERAGE FLOW	DESIGN FLOW *	TREATMENT LEVEL	EFFLUENT TYPE
#001	Dependent upon precipitation	4.0 MGD 6.2 cfs	best management practices, settling	stormwater
#002	2.5 MGD 3.9 cfs	2.5 MGD 3.9 cfs	best management practices	seep water (constant), stormwater (intermittent)
#004	n/a	n/a	land application	dust suppression/pumped groundwater

* Estimates based on permit renewal application.

FACILITY PERFORMANCE HISTORY & COMMENTS:
A site inspection was conducted on June 14, 2013. The facility was found to be in non-compliance during the time of the inspection for failing to meet permit effluent limitations. The Department began an Enforcement Action in 2000 for the same reason. Facility discharge monitoring report records show frequent exceedances of effluent limitations. This resulted in the initial enforcement action and continued non-compliance.

The site actions completed by the former owner in response to the Enforcement Action, including elimination of outfall 003, expansion of the metallurgical (MET) pond, capping of tailings areas, a TIE study, and implementing various BMPs, have served to improve site conditions sufficiently to allow compliance with the WET test conducted in February 2018 at both outfalls. Planned site remediation activities by the current owner should continue this trend toward compliance with permit conditions. The D tailings area has historically not been vegetated.

After review of the most recent (April 2018 through June 2018) data, significant differences are found when comparing them to historical data. The permit writer believes this is from inaccurate reporting of data from the wrong outfall. The following table shows how the discharge values at the site have changed in recent months. The permittee must report the correct data with the correct outfall. If the permittee was not reporting the outfalls incorrectly, the BMPs employed at the site have improved at outfall #002 while outfall #001 has shown deterioration. Regardless, the facility must meet the water quality limitations at the site and should assure the data reported to the department is representative of the actual site conditions.

Outfall #	Parameter	Historical Data Average	Recent Data Average
001	Cobalt	21.6 µg/L	1386.7 µg/L
002	Cobalt	1558.8 µg/L	39.1 µg/L
001	Copper	18.0 µg/L	92.6 µg/L
002	Copper	23.0 µg/L	12.6 µg/L
001	Lead	17.3 µg/L	50.3 µg/L
002	Lead	13.7 µg/L	15.8 µg/L
001	Nickel	35.2 µg/L	2196.7 µg/L
002	Nickel	2584.1 µg/L	48.5 µg/L
001	Chloride plus Sulfate	59.2 mg/L	658 mg/L
002	Chloride plus Sulfate	784.5 mg/L	210.3 mg/L

A more recent inspection was conducted on 5/31/2018 by the Southwest Regional Office and the Hazardous Waste Program. The inspectors sampled outfall #001 when it was not actively raining. The inspector stated the possibility was high the sample was obtained from (a henceforth permissible) dry-weather discharge of the dam toe drain/blanket drain seep. Also during the inspection, inspectors found low dissolved oxygen levels coming from the seep water prior to outfall #002, along with rust colored sediment possibly containing iron bacteria. D tailings area remains uncapped. The inspection concluded with a required response from the permittee which would indicate why the facility has been exceeding permitted limitations. The facility submitted the required response to the department, to which the department responded no further response was required at that time.

On 9/13/2018, a complaint was lodged with the EPA START Program and then relayed to the Regional Office regarding a dry weather discharge through outfall #001. The water was brown and flowing through town; photos and a video were taken on Hi Street and S. Mine Lamotte Streets, well downstream of the facility. Later, the on-site personnel indicated the water was from an unintentional pond dam breach, the result of a miscommunication with field staff; the pond is south of the D Tailings area. This pond was originally constructed as a wildlife habitat and has not contained process wastewater of any kind. The location of the pictures was about half a mile from outfall #001. The facility, under the 8/29/2008 permit, is not permitted to discharge non-stormwater flows from outfall #001. The regional office investigated the complaint immediately and samples were obtained from the illicit discharge. The facility still does not have authorization to discharge colored water; it is a violation of the general criteria. Because of this discharge, the permit writer must implement limitations for turbidity and color. The daily maximum and monthly average limitations for TSS were re-applied to outfall #001. The facility sampled this discharge; in the future, the facility must sample all discharges caused by dam breaches. See special condition #5. The data obtained from sampling was below all established permitted limitations.

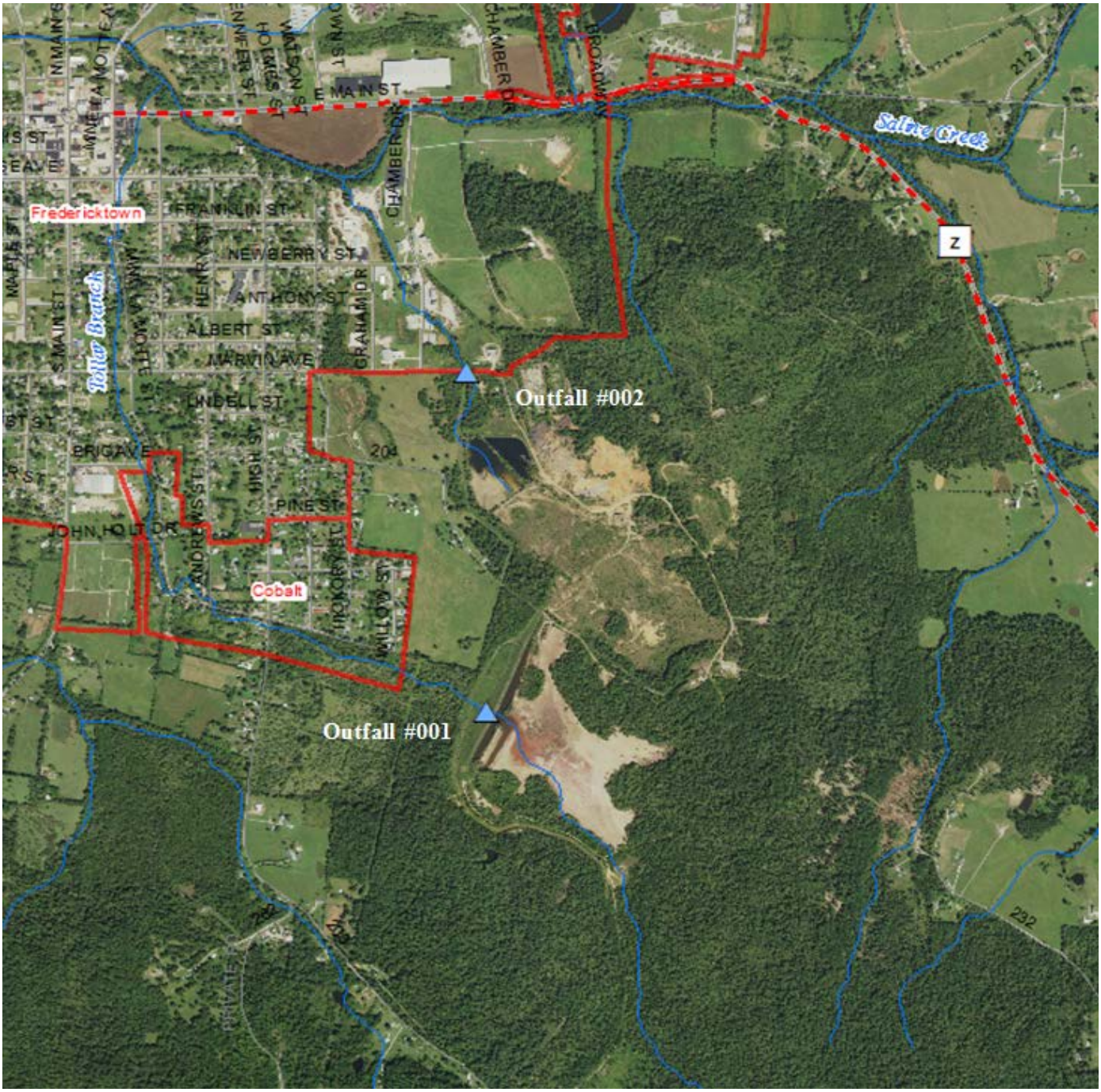
On 9/20/2018, the facility collected samples for total nitrogen, total phosphorus, and mercury. The permit writer reviewed the results therefore removed the monitoring requirements which were included in the previous draft. The data show non-detections for all three parameters therefore additional sampling within the permit is not required.

Within the comment letter dated 9/26/2018, the permittee disclosed outfall #001 also had the potential to discharge during dry weather events because of a toe drain, or blanked drain, associated with the dam. The permit writer contacted the Dam and Reservoir Safety Program which provided additional information regarding the construction of the dam. Given the site characteristics, the permit writer has confirmed dry weather discharges also occur through outfall #001; monthly average limitations are required and the facility is ineligible for benchmarks.

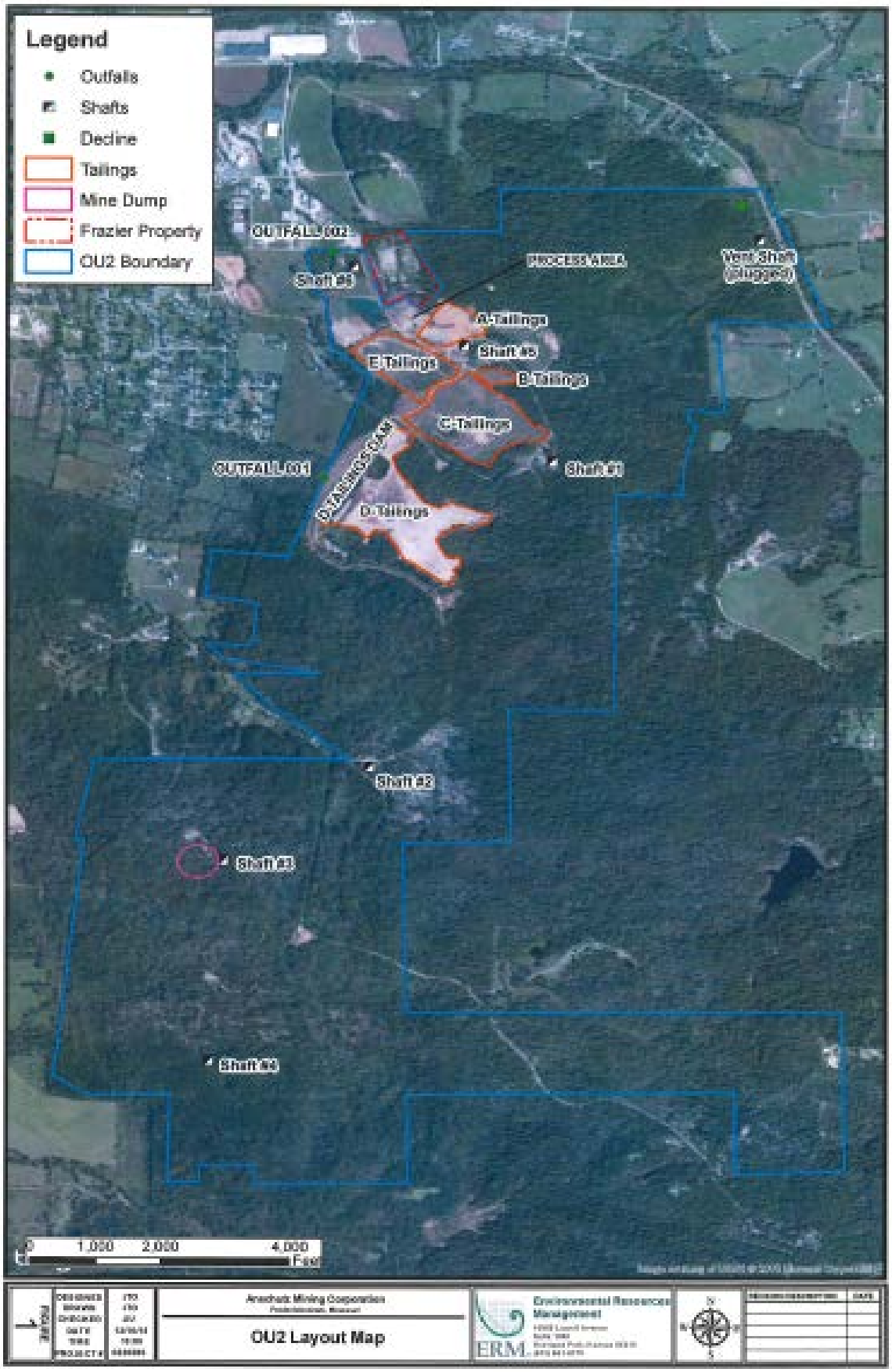
Because of the events on 9/13/2018 and the letter dated 9/20/2018, the permit writer has determined the facility is ineligible for benchmarks (there is wastewater discharging from the outfall) and must also have monthly averages (because dry weather discharges occur – blanket drain and dewatering activities).

The facility submitted a comment letter dated 10/23/2018; the comment letter contained request for minor wording changes and changes for typographical or connotation errors. As all the changes were accepted by the permit writer, the permit was submitted to management review late October 2018.

OUTFALL MAP:



HISTORICAL MAP:



Part II. Receiving Stream Information

Receiving Water Body's Water Quality:
The receiving streams Tollar Branch and tributary to Saline Creek and have no concurrent water quality data available. Tollar Branch is now a classified (C) (3960) stream whereas it was not classified in the previous permit, as EPA has approved the Department's new stream classifications.

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

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

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

✓ Outfall #003 belonging to this facility was the single cause of impairment of Goose Creek (WBID #s 2860) and Saline Creek (WBID #2859) and the associated TMDL can be found at the link above. Goose Creek and Saline Creek is impaired for nickel and calculations were provided for Cobalt. Elimination of the outfall #003 discharge appears to have changed the ground water pressure gradient so ground water seepage now discharges through outfall #002 continuously; this discharge flows to an unclassified tributary to Saline creek.

Applicable Designations of Waters of the State:

✓ As per Missouri's Effluent Regulations [10 CSR 20-7.015(1)(B)], the waters of the state are divided into the following seven 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: ☐
Lake or Reservoir: ☐
Losing: ☐
Metropolitan No-Discharge: ☐
Special Stream: ☐
Subsurface Water: ☐
All Other Waters: ☒

Receiving Streams Table:

Outfall	Waterbody Name	Class	WBID	Designated Uses*	Distance to Segment (Miles)	12-digit HUC
#001	8-20-13 MUDD V.1.0 locally known as Tollar Branch	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (AQL)	0.0	08020202-0102
#002	Saline Creek	P	2859	HHP, IRR, LWW, SCR, WBC-B, WWH (AQL)	0.51	

n/a not applicable

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

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

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

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

MIXING CONSIDERATIONS:
Mixing zone: not allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)].
Zone of initial dilution: not allowed [10 CSR 20-7.031(5)(A)4.B.(I)(b)].

RECEIVING STREAM MONITORING REQUIREMENTS:
No receiving water monitoring requirements are recommended at this time.

Part III. 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.

- ✓ 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.

ANTIBACKSLIDING:
Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] require a reissued permit to be as stringent as the previous permit with some exceptions. Backsliding (a less stringent permit limitation) is only allowed under certain conditions.

- ✓ Limitations in this operating permit for the reissuance conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
  - ✓ Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) which would have justified the application of a less stringent effluent limitation.
    - Five years of DMR data were available to the permit writer and support elevated effluent limitations and transition to benchmarks. DMR data compared to the total recoverable metals standards for several metals resulted in removal of effluent limitations. The discharge from outfall #001 consists of stormwater, certain effluent limitations for metals were removed and replaced with monitoring only.
    - Five years of DMR data were available to the permit writer and support removal of sulfate and chloride limits at outfall #001; the data were all well below the water quality standard, ranging from 6.8-268 mg/L compared to the 1,000 mg/L standard. Monitoring is continued.
  - ✓ The Department determined technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
    - Limitations for cobalt were not calculated correctly in the past as they implemented the chronic standard for the daily maximum resulting in overly restrictive limitations. The new calculations were performed correctly using the CCC for the monthly average resulting in elevated effluent limitations for the daily maximum.
    - The previous permit contained a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4); however, there was no determination as to whether the discharges have reasonable potential to cause or contribute to excursion of general water quality standards in the previous permit. Federal regulations 40 CFR 122.44(d)(1)(iii) requires instances were reasonable potential (RP) to cause or contribute to an exceedance of a water quality standard exists, a numeric limitation must be included in the permit. Rather than conducting the appropriate RP determination and establishing numeric effluent limitations for specific pollutant parameters, the previous permit simply placed the prohibitions in the permit. These conditions were removed from the permit. Appropriate reasonable potential determinations were conducted for each general criterion listed in 10 CSR 20-7.031(4) and effluent limitations were placed in the permit for those general criteria where it was determined the discharge had reasonable potential to cause or contribute to excursions of the general criteria. Specific effluent limitations were not included for those general criteria

where it was determined the discharges will not cause or contribute to excursions of general criteria. Removal of the prohibitions does not reduce the protections of the permit or allow for impairment of the receiving stream. The permit maintains sufficient effluent limitations, monitoring requirements and best management practices to protect water quality.

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

- ✓ Not applicable; the facility has not submitted information proposing expanded or altered process water discharge; no further degradation proposed therefore no further review necessary.

For stormwater discharges with new, altered, or expanding discharges, the stormwater BMP chosen for the facility, through the antidegradation analysis performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

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

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

- ✓ Not applicable; this condition is not applicable to the permittee for this facility.

CHANGES IN DISCHARGES OF TOXIC POLLUTANTS:
This special condition reiterates the federal rules found in 40 CFR 122.44(f) and 122.42(a)(1). In these rules, the facility is required to report changes in amounts of toxic substances discharged. Toxic substances are defined in 40 CFR 122.2 as "…any pollutant listed as toxic under section 307(a)(1) or, in the case of "sludge use or disposal practices," any pollutant identified in regulations implementing section 405(d) of the CWA." Section 307 of the clean water act then refers to those parameters found in 40 CFR 401.15. The permittee should also consider any other toxic pollutant in the discharge as reportable under this condition. Discharges of many of the parameters found in this permit and additional toxic pollutants, including those not enumerated in this permit are subject to reporting requirements in Special Condition #3.

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 due to exceeding effluent limitations.

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

- ✓ The facility no longer has an associated ELG. When the facility was actively mining, it would have been subject to 40 CFR 440, Subpart J as lead is found in this mine.
- ✓ The permit writer has noted cadmium is a pollutant of concern for this industry and was therefore included for monitoring; also cadmium shows RP.

GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into permits for pollutants which have been determined to cause, have the reasonable potential to cause, or to contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect narrative criterion. The previous permit included the narrative criteria as specific prohibitions placed upon the discharge. These prohibitions were included in the permit absent any discussion of the discharge's reasonable potential to cause or contribute to an excursion of the criterion. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether the discharge has reasonable potential to cause, or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches the rule itself, under 10 CSR 20-7.031(4)). In instances where reasonable potential

exists, the permit includes numeric limitations to address the reasonable potential. In instances where reasonable potential does not exist the permit includes monitoring of the discharges potential to impact the receiving stream's narrative criteria. Finally, all of the previous permit narrative criteria prohibitions have been removed from the permit given they are addressed by numeric limits where reasonable potential exists. It should also be noted Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit state it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule, or regulation promulgated by the commission.

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls indicates putrescent wastewater would be discharged from the facility.
- For all outfalls, there is no RP for unsightly or harmful bottom deposits preventing full maintenance of beneficial uses because all outfalls have TSS limitations, however, they are all based on technology for the processes involved; values discharged from all outfalls are typically below WQ limitations, therefore no RP.

(B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses.
- For all outfalls, there is no RP for oil in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal or during prior sampling for DMR requirements for these outfalls indicates oil will be present in sufficient amounts to impair beneficial uses.
- For all outfalls, there is no RP for scum and floating debris in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls indicates scum and floating debris will be present in sufficient amounts to impair beneficial uses

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
- For all outfalls, there is RP for unsightly color or turbidity in sufficient amounts preventing full maintenance of beneficial uses because disclosures by the permittee show TSS may be present in sufficient amounts to cause or contribute to infringements of non-numeric general criteria.
- For all outfalls, there is no RP for offensive odor in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls indicates offensive odor will be present in sufficient amounts to impair beneficial uses.

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
- The permit writer considered specific toxic pollutants when drafting this permit. Numeric effluent limitations are included for those pollutants which could be discharged in toxic amounts. These effluent limitations are protective of human health, animals, and aquatic life.

(E) There shall be no significant human health hazard from incidental contact with the water.
- The permit writer considered specific toxic pollutants when drafting this permit. Numeric effluent limitations are included for those pollutants which could be discharged in toxic amounts. These effluent limitations are protective of human health, animals, and aquatic life.

(F) There shall be no acute toxicity to livestock or wildlife watering.
- The permit writer considered specific toxic pollutants when drafting this permit. Numeric effluent limitations are included for those pollutants that could be discharged in toxic amounts. These effluent limitations are protective of human health, animals, and aquatic life.

(G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.
- For all outfalls, there is no RP for physical changes that would impair the natural biological community because nothing disclosed by the permittee at renewal for these outfalls indicates physical changes that would impair the natural biological community.
- For all outfalls, there is RP for chemical changes that would impair the natural biological community; the permit writer has considered specific pollutants and included those as necessary to protect chemical changes to the stream.
- For all outfalls, there is no RP for hydrologic changes that would impair the natural biological community because nothing disclosed by the permittee at renewal for these outfalls indicates hydrologic changes that would impair the natural biological community.

(H) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
- There are no solid waste disposal activities or any operation that has reasonable potential to cause or contribute to the materials listed above being discharged through any outfall.

GROUNDWATER MONITORING:

Groundwater is a water of the state according to 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6) and must be protected accordingly.

✓ This facility is not required to monitor groundwater for the water protection program.

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

✓ Not applicable; sludge is not generated at this facility.

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

✓ Applicable; this permit authorizes operation of a no-discharge land application system to stop the seep at outfall #002 from flowing. The permit writer has determined soil sampling is not required as the facility is pumping groundwater on to old tailings piles; this is a common practice at active mines and does not typically result in additional pollutant loading to the tailings pile.

REASONABLE POTENTIAL (RP):
Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants which (may be) discharged at a level causing or have the reasonable potential to cause (or contribute to) an in-stream excursion above narrative or numeric water quality standards. Per 10 CSR 20-7.031(4), general criteria shall be applicable to all waters of the state at all times; however, acute toxicity criteria may be exceeded by permit in zones of initial dilution, and chronic toxicity criteria may be exceeded by permit in mixing zones. If the permit writer determines any given pollutant has the reasonable potential to cause or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for the pollutant [40 CFR Part 122.44(d)(1)(iii)].

✓ Applicable; an RPA was conducted on appropriate parameters and was conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2) at outfalls #001 and #002. A more detailed version including calculations of this RPA is available upon request. See Wasteload Allocations (WLA) for Limits in this section.

Outfall #001

Parameter	Daily Max	Monthly Average	CMC	RWC Acute	CCC	RWC Chronic	n	Max/Min	CV	MF	RP
Antimony, TR	8.63	4.30	NA	8.25	4300.0	8.25	1	0.625/0.625	0.6	13.19	no
Arsenic, TR	246.40	122.82	NA	NA	150.0	10.03	1	0.76/0.76	0.6	13.19	no
Cadmium, TR	1.40	0.70	5.6	3.69	0.9	3.69	1	0.28/0.28	0.6	13.19	yes
Cobalt	1537.2	469.30	NA	8993.32	1000.0	8993.32	42	1740/0	3.1	5.17	yes
Copper, TR	15.31	5.06	15.3	903.02	10.1	903.02	42	247/0	1.8	3.66	yes
Lead, TR	5.71	1.76	92.1	1692.34	3.6	1692.34	42	350/0	2.8	4.84	yes
Nickel, TR	87.19	26.65	508.9	13560.05	56.5	13560.05	42	2640/0	3.1	5.14	yes
Zinc, TR	130.16	81.17	130.2	172.50	129.1	172.50	42	119/0	0.4	1.45	yes

Outfall #002

Parameter	Daily Max	Monthly Average	CMC	RWC Acute	CCC	RWC Chronic	n	Max/Min	CV	MF	RP
Arsenic, TR	246.40	122.82	NA	NA	150.0	10.42	1	0.79/0.79	0.6	13.19	no
Cadmium, TR	1.40	0.70	5.6	3.69	0.9	3.69	1	0.28/0.28	0.6	13.19	yes
Cr - III, TR	153.06	76.29	1949.6	65.97	93.2	65.97	1	5/5	0.6	13.19	no
Cobalt	1102.59	692.57	NA	3085.77	1000	3085..77	28	2020/9.8	0.5	1.59	yes
Copper, TR	15.31	5.62	15.3	301.30	10.1	301.30	42	108/0	1.2	2.79	yes
Lead, TR	6.54	2.24	92.1	282.60	3.6	282.60	42	85.9/0	1.6	3.29	yes
Nickel, TR	80.94	49.91	508.9	4714.64	56.5	4714.64	42	3220/21.6	0.4	1.46	yes
Zinc, TR	130.16	86.98	130.2	147.38	129.1	147.38	42	108/10	0.3	1.36	yes

✓ This facility has reasonable potential for cadmium, cobalt, lead, nickel, and zinc. To reduce permitting confusion, the permit writer has determined applying the same limitations without using site specific data (CV 0.6) to be the best path forward; this allows the limitations for both outfalls to be the same using default coefficient of variation. The previous permit used this same practice and this procedure is typical when applying limitations for different outfalls at the same facility when the contaminants of concern are the same. When the parameter data exceed the daily maximum, the daily maximum value also goes up, but the long term limit, then decreases. The permit writer has reviewed the conditions at this site and determined a higher monthly average would be more beneficial to the permittee in this instance as many of the flows from this facility are not wholly under the control of the permittee.

- ✓ Permit writers use the department's permit writer's manual (http://dnr.mo.gov/env/wpp/permits/manual/permit-manual.htm), the EPA's permit writer's manual (https://www.epa.gov/npdes/npdes-permit-writers-manual), program policies, and best professional judgment. For each parameter in each permit, the permit writer carefully considers all applicable information regarding: technology based effluent limitations, effluent limitation guidelines, water quality standards, stream flows and uses, and all applicable site specific information and data gathered by the permittee through discharge monitoring reports and renewal (or new) application sampling. Best professional judgment is based on the experience of the permit writer, cohorts in the department and resources at the EPA, research, and maintaining continuity of permits if necessary. For stormwater permits, the permit writer is required per 10 CSR 6.200(6)(B)2 to consider: A. application and other information supplied by the permittee; B. effluent guidelines; C. best professional judgment of the permit writer; D. water quality; and E. BMPs. Part IV provides specific decisions related to this permit.

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

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

In order to provide guidance to Permit Writers in developing SOCs, and attain a greater level of consistency, on October 25, 2012 the department issued a policy on development of SOCs. This policy provides guidance to permit writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as an affordability analysis.

- ✓ 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(12)]. The facility has been given a schedule of compliance to meet final effluent limits. The facility has no treatment technology installed and needs time to install the system which has yet to be designed. See permit Sections A and B for compliance dates and other requirements.

SPILL REPORTING:
Per 10 CSR 24-3.010, any emergency involving a hazardous substance must be reported to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I. http://dnr.mo.gov/env/esp/spillbill.htm

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

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

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

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

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

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

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

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

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

✓ Not applicable; this facility does not have any stormwater-only outfalls.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k), Best Management Practices (BMPs) must be used to control or abate the discharge of pollutants when: 1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; 3) Numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (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 waters of the state from a permitted facility. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to 1) identify sources of pollution or contamination, and 2) select and carry out actions which prevent or control the pollution of storm water discharges.

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

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

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

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

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

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

UNDERGROUND INJECTION CONTROL (UIC):

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

✓ Not applicable; the permittee has not submitted materials indicating the facility will be performing UI at this site.

VARIANCE:

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

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

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the WLA is the amount of pollutant each discharger is allowed to discharge into the receiving stream without endangering water quality. Two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs) are reviewed. If one limit does provide adequate protection for the receiving waters, then the other must be used.

✓ Applicable; wasteload allocations were calculated where relevant using water quality criteria or water quality model results and by applying the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration

Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

- Acute wasteload allocations designated as daily maximum limits (MDL) were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).
- Chronic wasteload allocations designated as monthly average limits (AML) were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ).
- Water quality based MDL and AML effluent limitations were calculated using methods and procedures outlined in USEPA's *Technical Support Document For Water Quality-based Toxics Control* or TSD EPA/505/2-90-001; 3/1991.
- Number of Samples "n": 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, targeted to comply with the values dictated by the WLA. Therefore, it is recommended 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.

WLA MODELING:
Permittees may submit site specific studies to better determine the site specific wasteload allocations applied in permits.
✓ Not applicable; a WLA study was either not submitted or determined not applicable by department staff.

WATER QUALITY STANDARDS:
Per 10 CSR 20-7.031(4), general criteria shall be applicable to all waters of the state at all times. 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 IV. Effluent Limits Determination

Effluent limitations derived and established in the below effluent limitations table are based on current operations of the facility. Effluent means both process water and stormwater. Any flow through the outfall is considered a discharge and must be sampled and reported as provided below. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

Outfalls #001 and #002 – Seepwater and Stormwater Only

Effluent Limitations Table:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	SAME	ONCE/MONTH	ONCE/MONTH	24 HR. TOT
CONVENTIONAL							
pH Ω	SU	6.5 TO 9.0	6.5 to 9.0	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TSS	mg/L	45	30	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
METALS							
ARSENIC, TR	µg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
CADMIUM, TR ▼	µg/L	*	*	I – NEW	ONCE/MONTH	ONCE/MONTH	GRAB
CADMIUM, TR ▼	µg/L	0.5	0.2	F – NEW	ONCE/MONTH	ONCE/MONTH	GRAB
COBALT, TR	µg/L	1103	817	1000, 817	ONCE/MONTH	ONCE/MONTH	GRAB
COBALT, TR	µg/L	1103	693	F	ONCE/MONTH	ONCE/MONTH	GRAB
COPPER, TR ▼	µg/L	26	13	I – SAME	ONCE/MONTH	ONCE/MONTH	GRAB
COPPER, TR ▼	µg/L	15.3	5.6	F	ONCE/MONTH	ONCE/MONTH	GRAB
LEAD, TR ▼	µg/L	188	94	I – SAME	ONCE/MONTH	ONCE/MONTH	GRAB
LEAD, TR ▼	µg/L	6.5	2.2	F	ONCE/MONTH	ONCE/MONTH	GRAB
NICKEL, TR	µg/L	818	407	I – SAME	ONCE/MONTH	ONCE/MONTH	GRAB
NICKEL, TR	µg/L	80.9	49.9	F	ONCE/MONTH	ONCE/MONTH	GRAB
ZINC, TR	µg/L	210	104	I - SAME	ONCE/MONTH	ONCE/MONTH	GRAB
ZINC, TR	µg/L	130.2	87.0	F	ONCE/MONTH	ONCE/MONTH	GRAB
OTHER							
CHLORIDE	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
SULFATE	mg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
CHLORIDE PLUS SULFATE	mg/L	1000	1000	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
CYANIDE, TOTAL	µg/L	*	*	NEW	ONCE/MONTH	ONCE/MONTH	GRAB
WET TEST - ACUTE	TUa	1.0	-	PASS/FAIL	ONCE/YEAR	ONCE/YEAR	GRAB

*	Monitoring requirement only
Ω	The facility will report the minimum and maximum pH values; pH is not to be averaged
NEW	Parameter not established in previous operating permit
TR	Total Recoverable
I	interim
F	final
▼	the facility must use analytical method 200.8 or approved method with same or lower detection limit for this parameter following 40 CFR 136 sanctioned methods for wastewater sampling; SW-846 methods are not compliant with NPDES conditions

Derivation and Discussion of Limits:

Physical:

Flow

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

Hardness, Total
Monthly monitoring not continued. In-stream or ecoregion hardness will be used to determine hardness henceforth.

CONVENTIONAL:

pH
6.5 to 9.0 SU. The Water Quality Standard at 10 CSR 20-7.031(5)(E) states water contaminants shall not cause pH to be outside the range of 6.5 to 9.0 standard pH units. Monthly monitoring continued. Four exceedances of this parameter occurred during the last permit cycle.

Settleable Solids (SS)
Previous permit limits were 1.5 mL/L/hr daily maximum and 1.0 mL/L/hr monthly average. The facility reported non-detections for the previous five years. As there has not been a detection of this parameter, monitoring and limitations are removed.

Total Suspended Solids (TSS)
45 mg/L daily max; 30 mg/L monthly average. Previous permit limits were 45 mg/L daily maximum and 30 mg/L monthly average. The facility has been able to consistently meet these limits, reporting from non-detect to 36 mg/L (one value over the monthly average for the last five years). The permit writer has determined the limits are representative of the conditions on site and therefore will remain. ELG limitations would be 30 mg/L daily maximum; 20 mg/L monthly average. Monthly monitoring continued from the previous permit.

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 habitat criteria apply (WWH) designated as AQL in 10 CSR 20-7.031 Table A1. Additional use criterion (HHP, DWS, GRW, IRR, or LWW) may also be used as applicable to determine the most protective effluent limit for the stream class and uses. The hardness for this outfall is based on the watershed hardness for the Ozark/Upper St. Francis/Castor River of 110 mg/L and the permit writer has determined this is a protective hardness for this facility. The facility's hardness values range from 83 to 1040 and the permit writer determined these hardness values are highly variable therefore an in-stream hardness for the site should be used to remain protective of the stream.

The previous permit used 193 mg/L for hardness and did not take into account any chronic standards when performing calculations for copper, lead, nickel, and zinc therefore the limits derived in this permit are significantly lower than the last permit. Both outfalls have been shown to have discharges which are not under the influence of stormwater, therefore chronic standards must apply.)

Arsenic, Total Recoverable
New parameter, monthly monitoring required. Historic documentation shows arsenic was found within sediment at the site. Because the facility is planning on disturbing the land at this site, monitoring for this parameter is necessary per the permit writer's best professional judgment. During the sampling event on 5/31/2018, the discharge contained 0.79 µg/L of arsenic therefore there is currently no reasonable potential. A sample was collected from "black pond #2" on 2/25/1986 and was 1,800 µg/L. Although this pond may no longer exist (it is not currently on any diagram), this shows arsenic was present at the site in exceedingly high amounts in the past. Potential water quality limits would be about 246 µg/L daily maximum and 123 µg/L monthly average if reasonable potential is found. Discharges of this parameter are subject to reporting requirements in Special Condition #3; arsenic is considered a toxic pollutant.

Cadmium, Total Recoverable
Daily max 0.5 µg/L; monthly average 0.2 µg/L. During the event on 5/31/2018, the discharge contained 0.28 µg/L of cadmium. This is the only known valid sample for this parameter at the outfall and cadmium was considered in the ELG at 40 CFR 440.102(b) as a pollutant of concern. A sample of the seep water on 8/16/2018 did not use sufficiently sensitive methods to determine compliance with standard conditions Part I; reported <2 µg/L. This permit establishes required analytical methods for this parameter (▼). A sample was collected from "black pond #1" on 2/25/1986 and was 280 µg/L. Although this pond may no longer exist (it is not currently on any diagram), this shows cadmium was present at the site in exceedingly high amounts in the past. It is unlikely this pond was effectively remediated given the history of the site. As there is reasonable potential, this permit must contain limitations. Discharges of this parameter are subject to reporting requirements in Special Condition #3; cadmium is considered a toxic pollutant. See Part III, SCHEDULE OF COMPLIANCE and Parts A and B of permit.

Acute AQL WQS:	$e^{(1.0166 * \ln 110 - 3.062490)} * (1.136672 - \ln 110 * 0.041838) = 5.229$	[at Hardness 110]
Chronic AQL WQS:	$e^{(0.7409 * \ln 110 - 4.719948)} * (1.101672 - \ln 110 * 0.041938) = 0.263$	[at Hardness 110]
Acute WQS:	5.229 ÷ 0.940 = 5.562	[Total Recoverable Conversion]
Chronic WQS:	0.263 ÷ 0.905 = 0.290	[Total Recoverable Conversion]

Set WQS to WLA (when no mixing considerations) see mixing below

LTA_a:	5.562 (0.321) = 1.786 µg/L	[CV = 0.6, 99th Percentile]
LTA_c:	0.290 (0.527) = 0.153 µg/L	[CV = 0.6, 99th Percentile]

Use most protective number of LTA_a or LTA_c.

MDL:	0.153 (3.11) = 0.477 µg/L	[CV = 0.6, 99th Percentile]
AML:	0.153 (1.55) = 0.238 µg/L	[CV = 0.6, 95th Percentile, n = 4]

Cobalt, Total Recoverable

Daily max 1103 µg/L, monthly average 693 µg/L. Previous permit limits were 1000 µg/L daily maximum and 817 µg/L monthly average. DMR data ranged from 10.2 to 2,020 µg/L. The facility had 35 exceedances of this parameter in the last five years. See Part III: ANTIBACKSLIDING, and SCHEDULE OF COMPLIANCE; see permit parts A and B for dates.

Chronic LWP/IRR:	1000 µg/L (no acute standard)	
Chronic WLA:	C_e = 1000	[WLA=WQS when no mixing]
LTA_c:	1000 (0.676) = 527.433	[CV = 0.352, 99th Percentile]
MDL:	527.433 (2.09) = **1103 µg/L**	[CV = 0.352, 99th Percentile]
AML:	527.433 (1.31) = **693 µg/L**	[CV = 0.352, 95th Percentile, n = 4]

Copper, Total Recoverable

Daily maximum 15.3 µg/L; monthly average 5.6 µg/L. Previous permit limits were 26 µg/L daily maximum, 13 µg/L monthly average. The facility reported 10 to 127 µg/L. This permit establishes required analytical methods for this parameter (▼). This parameter has reasonable potential per RPA. See Part III: SCHEDULE OF COMPLIANCE and Parts A and B of permit.

Acute AQL WQS:	$e^{(0.9422 * \ln 110 - 1.7003)} * 0.960 = 14.697$	[at Hardness 110]
Chronic AQL WQS:	$e^{(0.8545 * \ln 110 - 1.7020)} * 0.960 = 9.716$	[at Hardness 110]
Acute TR WQS:	14.697 ÷ 0.960 = 15.310	[Total Recoverable Conversion]
Chronic TR WQS:	9.716 ÷ 0.960 = 10.120	[Total Recoverable Conversion]
Acute WLA:	C_e = 15.310	[WLA=WQS when no mixing]
Chronic WLA:	C_e = 10.120	[WLA=WQS when no mixing]
LTA_a:	15.310 (0.169) = 2.594	[CV = 1.23, 99th Percentile]
LTA_c:	10.120 (0.313) = 3.171	[CV = 1.23, 99th Percentile]
	Use most protective number of LTA_a or LTA_c.	
MDL:	2.594 (5.90) = 15.310 µg/L	[CV = 1.23, 99th Percentile]
AML:	2.594 (2.17) = 5.621 µg/L	[CV = 1.23, 95th Percentile, n = 4]

Lead, Total Recoverable

Daily maximum 6.5 µg/L; monthly average 2.2 µg/L. Previous permit limits were 188 µg/L daily maximum, 94 µg/L monthly average; DMR data ranged from 5 to 89.5 µg/L. This permit establishes required analytical methods for this parameter (▼). This parameter has reasonable potential per RPA. See Part III: SCHEDULE OF COMPLIANCE and Parts A and B of permit.

Acute AQL WQS:	$e^{(1.273 * \ln 110 - 1.460448)} * (1.46203 - \ln 110 * 0.145712) = 71.600$	[at Hardness 110]
Chronic AQL WQS:	$e^{(1.273 * \ln 110 - 4.704797)} * (1.46203 - \ln 110 * 0.145712) = 2.792$	[at Hardness 110]
Acute TR WQS:	71.600 ÷ 0.777 = 92.136	[Total Recoverable Conversion]
Chronic TR WQS:	2.792 ÷ 0.777 = 3.593	[Total Recoverable Conversion]
Acute WLA:	C_e = 92.136	[WLA=WQS when no mixing]
Chronic WLA:	C_e = 3.593	[WLA=WQS when no mixing]
LTA_a:	92.136 (0.139) = 12.793	[CV = 1.57, 99th Percentile]
LTA_c:	3.593 (0.253) = 0.909	[CV = 1.57, 99th Percentile]
	Use most protective number of LTA_a or LTA_c.	
MDL:	0.909 (7.20) = 6.543 µg/L	[CV = 1.57, 99th Percentile]
AML:	0.909 (2.46) = 2.238 µg/L	[CV = 1.57, 95th Percentile, n = 42]

Nickel, Total Recoverable

Daily maximum 80.9 µg/L; monthly average 49.9 µg/L. Previous permit limits were 818 µg/L daily maximum and 407 µg/L monthly average. DMR data ranged from 104 to 3,220 µg/L. The Toxicity Identification Evaluation performed in May 2007 identified nickel as the primary toxicant. See Part III: SCHEDULE OF COMPLIANCE and Parts A and B of permit.

Acute AQL WQS:	$e^{(0.846 * \ln 110 + 2.255647)} * 0.998 = 507.883$	[at Hardness 110]
Chronic AQL WQS:	$e^{(0.846 * \ln 110 + 0.058978)} * 0.997 = 56.374$	[at Hardness 110]
Acute TR WQS:	507.883 ÷ 0.998 = 508.901	[Total Recoverable Conversion]
Chronic TR WQS:	56.374 ÷ 0.997 = 56.543	[Total Recoverable Conversion]
Acute WLA:	C_e = 508.901	[WLA=WQS when no mixing]
Chronic WLA:	C_e = 56.543	[WLA=WQS when no mixing]
LTA_a:	508.901 (0.464) = 236.111	[CV = 0.369, 99th Percentile]
LTA_c:	56.543 (0.664) = 37.553	[CV = 0.369, 99th Percentile]
	Use most protective number of LTA_a or LTA_c.	
MDL:	37.553 (2.16) = 80.940 µg/L	[CV = 0.369, 99th Percentile]
AML:	37.553 (1.33) = 49.913 µg/L	[CV = 0.369, 95th Percentile, n = 42]

Zinc, Total Recoverable

Daily maximum 130.2 µg/L; monthly average 87.0 µg/L. Previous permit limits were 210 µg/L daily maximum, 104 µg/L monthly average. DMR data ranged from 50 to 131 µg/L. There is no RP for this parameter, however, the permit writer is continuing limitations derived at the 1040 mg/L hardness value as the ELG at 40 CFR 440 Subpart J has identified this parameter as a pollutant of concern for this industry. See Part III: SCHEDULE OF COMPLIANCE and Parts A and B of permit.

Acute AQL WQS:	$e^{(0.8473 * \ln 110 + 0.884)} * 0.98 = 127.296$	[at Hardness 110]
Chronic AQL WQS:	$e^{(0.8473 * \ln 110 + 0.884)} * 0.98 = 127.296$	[at Hardness 110]
Acute TR WQS:	127.296 ÷ 0.978 = 130.159	[Total Recoverable Conversion]
Chronic TR WQS:	127.296 ÷ 0.986 = 129.103	[Total Recoverable Conversion]
Acute WLA:	C_e = 130.159	[WLA=WQS when no mixing]
Chronic WLA:	C_e = 129.103	[WLA=WQS when no mixing]
LTA_a:	130.159 (0.530) = 68.921	[CV = 0.297, 99th Percentile]
LTA_c:	129.103 (0.716) = 92.480	[CV = 0. 297, 99th Percentile]
	Use most protective number of LTA_a or LTA_c.	
MDL:	68.921 (1.89) = 130.159 µg/L	[CV = 0. 297, 99th Percentile]
AML:	68.921 (1.26) = 86.982 µg/L	[CV = 0. 297, 95th Percentile, n = 42]

OTHER:

Chloride, Sulfate, and Chloride plus Sulfate

Previous permit limitations of 1,000 mg/L daily maximum and monthly average continued as chloride plus sulfate. DMR data ranged from 43.5 to 943 mg/L. The permit writer has determined, through RPD, there is reasonable potential to cause or contribute to excursions of the water quality standards during discharge. Monthly monitoring continued from previous permit. This permit adds the reporting of chloride and sulfate independently to determine the contribution of each parameter into the total.

Cyanide, Total

New parameter; monthly monitoring required. Documentation from past investigations shows cyanide was used in processing and is found incorporated within sediment, the permittee has obtained a land disturbance permit therefore the permit writer has included monitoring to assure any discharges are meeting WQS. Discharges of this parameter are subject to reporting requirements in Special Condition #3; cyanide is considered a toxic pollutant. Potential effluent limitations would be 8.54 µg/L daily maximum and 4.26 µg/L monthly average.

Whole Effluent Toxicity (WET) Testing - Acute

A WET test is a quantifiable method to determine discharges from the facility cause toxicity to aquatic life by itself, in combination with, or through synergistic responses, when mixed with receiving stream water.

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 the provisions in 10 CSR 20-6 and the Water Quality Standards in 10 CSR 20-7 are being met. Under 10 CSR 20-6.010(8)(A)4, the Department may require other terms and conditions it deems necessary to assure compliance with the CWA and related regulations of the Missouri Clean Water Commission. The following Missouri Clean Water Laws (MCWL) apply: §644.051.3. requires the Department to set permit conditions complying 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); and §644.051.5. is the basic authority to require testing conditions. WET tests are required by all facilities meeting the following criteria:

☒ Facility has Water Quality-Based Effluent Limitations for toxic substances (other than NH_3)

☒ Other – the discharge has shown toxicity in the past.

✓ This facility is required to perform a TIE or TRE after three WET test failures. The department has a TIE on file which was completed on outfall #002 discharges by the permittee's subcontractor ERM in 2005/2006. A report was submitted to the department in May 2007 indicating nickel was the primary toxicant and copper was the secondary toxicant. The permittee should strive to make advances to assure the discharged stormwater and wastewater is no longer toxic. This permit requires limitations as the previous permit had limits.

✓ The permit writer has determined the mortality endpoint of acute testing is indicative of the stormwater and low volume constant seeps present at outfalls #001 and #002 after review of the discharge information provided through DMRs. While chronic testing demonstrates the effect on organisms over a four day period; acute testing only shows mortality based on exposure to the effluent for 48 hours. As the organisms in the receiving stream are not consistently exposed to the effluent, the acute effluent test will apply. While some discharges are consistent, the permit writer has determined, using information provided by the permittee, toxicity is likely more prevalent from stormwater discharges due to the land disturbance and underlying mine spoils, than from any seep discharge.

Whole Effluent Toxicity (WET) testing is the use of representative, standardized organisms to assess instream toxic impacts from dischargers. There are two basic types of WET tests: acute and chronic. The 48-hour acute test measures toxicity where death of

the test organisms is the measured endpoint. The 7-day chronic test measures reduction in growth or reproduction of test organisms.

WET tests use standardized lab organisms from two trophic levels to represent species found in the natural environment. The fathead minnow (*Pimephales promelas*), a fish commonly found throughout North America, is used to represent vertebrate species. A commonly found water flea (*Ceriodaphnia dubia)* is used to represent aquatic invertebrates that serve as an important link in the food chain. Assessment of overall toxicity is based on the toxicity results for both species as sensitivity is measured synergistically and certain contaminants are more toxic to vertebrates over invertebrates and conversely.

Both acute and chronic tests are conducted in similar ways. In the tests, effluent is diluted into test chambers in a series from 100% effluent to more dilute samples. The dilution series is designed to "bracket" the observed type of toxicity. For instance, in an acute test, the dilution series would need to include dilutions where there is observable toxicity and more dilute samples where there is no observed mortality. (Note: Not all samples can be bracketed. Higher levels of toxicity are usually found with industrial discharges or cities with large industrial users.)

Limitations are continued from the previous permit; the previous permit contained monitoring with a pass/fail test; the limit is continued due to reasonable potential being present but the units have been changed to "Toxic Units" (TU). Acute whole effluent toxicity tests with and endpoint of mortality (LC_{50}) and percent survival is the same endpoint as a TU limit of 1. Therefore this test is comparable to the methods and limitations of the pass/fail tests as the endpoint is the same measure, only the units have changed. This permit will contain a toxic unit limit calculated as follows;

WQS: no toxics in toxic amounts [10 CSR 20-7.031(4)(I)2.B.] = 0.3 TUa

Acute WLA: $C_e = ((DF_{cfs} + ZID_{7Q10})\ 0.3 - (ZID_{7Q10} * \text{Background}))/\ DF_{cfs}$

C_e = 0.3 TUa *(if no mixing)*

LTA_a: 0.3 TUa (0.321) = 0.0963 TUa [CV = 0.6, 99th Percentile]

MDL: 0.0963 TUa (3.11) = 0.3 TUa [CV = 0.6, 99th Percentile]

Where no mixing is allowed the acute criterion must be met at the end of the pipe. However, when using an LC_{50} as the test endpoint, the acute toxicity test has an upper sensitivity level of 100% effluent, or 1.0 TUa. If less than 50% of the test organisms die at 100% effluent, the true LC_{50} value for the effluent cannot be measured, effectively acting as a detection limit. Therefore, when the allowable effluent concentration is 100% a limit of **1.0 TUa** will apply.

SAMPLING REQUIREMENTS

Annual sampling continued.

TESTING REQUIREMENTS

The standard Allowable Effluent Concentration (AEC) for facilities discharging to unclassified, Class C, Class P (with default mixing considerations), or lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] is 100%.

The standard dilution series for facilities discharging to unclassified, Class C, Class P (with default mixing considerations), or lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] is 100%, 50%, 25%, 12.5%, & 6.25%.

PERMITTED FEATURE #004 – LAND APPLICATION

The permittee has authorization to apply pumped groundwater (used for dust suppression) to the following areas listed under "Planned Land Application Areas":

See permit Part E.

Part V. Sampling and Reporting Requirements:

Refer to each outfall's derivation and discussion of limits section to review individual sampling and reporting frequencies and sampling type. Additionally, see Standard Conditions Part I attached at the end of this permit and fully incorporated within.

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

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

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

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

Sampling Frequency Justification:
Sampling and reporting frequency was generally retained from previous permit. 40 CFR 122.45(d)(1) indicates all continuous discharges shall be permitted with daily maximum and monthly average limits. Monthly sampling frequency for stormwater-only outfalls at this site is appropriate. The facility may sample more frequently if additional data is required to determine if best management operations and technology are performing as expected.

Sampling Type Justification:
Sampling type was continued from the previous permit. The sampling types are representative of the discharges, and are protective of water quality. Discharges with altering effluent should have composite sampling; discharges with uniform effluent can have grab samples. Grab samples are usually appropriate for stormwater. Parameters which must have grab sampling are: pH, ammonia, *E. coli*, total residual chlorine, free available chlorine, hexavalent chromium, dissolved oxygen, total phosphorus, and volatile organic samples.

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

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, 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.

Business Registration:
The facility owner is listed as Missouri Mining Investments, LLC as LC001563199.

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

✓ *This permit will become synchronized by expiring the end of the third quarter of 2021.*

Public Notice:
The Department shall give public notice that a draft permit has been prepared and its issuance is pending. http://dnr.mo.gov/env/wpp/permits/pn/index.html Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in 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 was from 11/16/2018-12/17/2018. One comment letter was received.

Comment
The facility should be required to install a continuous flow measurement device on both outfalls and sampling should occur using an automatic flow-proportional sampling device.

Response
The permit writer does not have the authority to require continuous flow measuring devices or flow-proportional sampling in NPDES permits.

Date of Fact Sheet: December 20, 2018

A clarification was completed after public notice by adding “total recoverable lead” to bullet point #3 in Part B of the permit, indicating a schedule of compliance is also allowed for this parameter. The intent was clear in Tables A-1 and A-2, therefore an additional public notice period is not required.

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

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

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

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

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

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

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

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

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

Section B – Reporting Requirements

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

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

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

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

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

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

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

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

Section C – Bypass/Upset Requirements

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

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

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

Section D – Administrative Requirements

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM A – APPLICATION FOR NONDOMESTIC PERMIT UNDER MISSOURI CLEAN WATER LAW

NOTE: PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM.

1. This application is for: (Select only one.)

- ☐ An operating permit for a new or unpermitted facility. Number of original construction permit: MO _____
- ☐ Renewal of an operating permit. Permit number: MO_____ Expiration date: _____
- ☐ Modification of an operating permit. Permit number: MO_____ Modification reason:_____

1.1 Is the appropriate fee included with the application? (See instructions for appropriate fee.) ☐ Yes ☐ No

2. FACILITY

NAME	TELEPHONE NUMBER WITH AREA CODE		
	EMAIL		
PHYSICAL ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE

3. OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE		
	EMAIL		
MAILING ADDRESS	CITY	STATE	ZIP CODE

3.1 Do you want to review draft permit prior to public notice? ☐ Yes ☐ No

4. CONTINUING AUTHORITY

NAME	TELEPHONE NUMBER WITH AREA CODE		
	EMAIL		
MAILING ADDRESS	CITY	STATE	ZIP CODE

5. OPERATOR

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

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
	EMAIL	

7. ADDITIONAL FACILITY INFORMATION

7.1 Legal description of outfalls (Attach additional sheets, if necessary.)

001 _____¼ _____¼ Sec _____ T _____ R _____ _____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

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

002 _____¼ _____¼ Sec _____ T _____ R _____ _____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

003 _____¼ _____¼ Sec _____ T _____ R _____ _____ County
UTM Coordinates Easting (X): Northing (Y):

004 _____¼ _____¼ Sec _____ T _____ R _____ _____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

7.2 Primary standard industrial classification (SIC) and North American Industrial Classification System (NAICS) codes

001 – SIC_____ and NAICS _____ 002 – SIC_____ and NAICS _____
003 – SIC_____ and NAICS _____ 004 – SIC_____ and NAICS _____

8.	ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE APPLICATION (Complete all applicable forms.)		
A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C or 2F. (2F is EPA's Application for Storm Water Discharges Associated with Industrial Activity.)	Yes ☑	No ☐
B.	Is application for stormwater discharges only? If yes, complete Form C or 2F.	Yes ☐	No ☑
C.	Is your facility considered a "primary industry" under EPA guidelines: If yes, complete Forms C or 2F and D.	Yes ☑	No ☐
D.	Is wastewater land-applied? If yes, complete Form I.	Yes ☑	No ☐
E.	Are biosolids, sludge, ash or residuals generated, treated, stored or land-applied? If yes, complete Form R.	Yes ☐	No ☑
F.	If you are a Class IA CAFO, disregard Parts D and E, above, but attach any revisions to the nutrient management plan.		
G.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		

9. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, permittee shall report effluent limits and monitoring via an electronic system to ensure timely, complete, accurate and nationally consistent data.
Check one of the following for this application to be considered complete. (Check only one.)
To access the facility participation package, visit dnr.mo.gov/env/wpp/edmr.htm.

☐ You completed and submitted with this permit application the required documentation to participate in the eDMR system.

☑ You previously submitted required documentation to participate in the eDMR system and/or you currently use the eDMR system.

☐ You submitted a written request for a waiver from electronic reporting. See instructions for information regarding waivers.

9. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions.
PLEASE SHOW LOCATION ON MAP. SEE 8(D) ABOVE.

NAME			
ADDRESS	CITY	STATE	ZIP CODE

11. I certify that I am familiar with the information contained in this application. To the best of my knowledge and belief, such information is true, complete and accurate. If granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions subject to any legitimate appeal to the Missouri Clean Water Commission available to the applicant under the Missouri Clean Water Law.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
	314-413-3647
SIGNATURE Marty Thomas, Vice President, Operations (Missouri Cobalt)	DATE SIGNED 5-16-2019

MO 780-1479 (04-18)

BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETE.
ALSO INCLUDE APPLICABLE ADDITIONAL FORMS.
Submitting an incomplete application may result in the application being returned.

HAVE YOU INCLUDED THE FOLLOWING?

- ☑ Appropriate fees
- ☑ Map at 1" = 2000' scale
- ☑ Signature
- ☑ Form C or 2F, if applicable
- ☐ Form D, if applicable
- ☑ Form I (Irrigation), if applicable
- ☐ Form R (Sludge), if applicable
- ☐ Revised nutrient management plan, if applicable

8.	ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE APPLICATION (Complete all applicable forms.)		
A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C or 2F. (2F is EPA's Application for Storm Water Discharges Associated with Industrial Activity.)	Yes ☐	No ☐
B.	Is application for stormwater discharges only? If yes, complete Form C or 2F.	Yes ☐	No ☐
C.	Is your facility considered a "primary industry" under EPA guidelines: If yes, complete Forms C or 2F and D.	Yes ☐	No ☐
D.	Is wastewater land-applied? If yes, complete Form I.	Yes ☐	No ☐
E.	Are biosolids, sludge, ash or residuals generated, treated, stored or land-applied? If yes, complete Form R.	Yes ☐	No ☐
F.	If you are a Class IA CAFO, disregard Parts D and E, above, but attach any revisions to the nutrient management plan.		
G.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		

9. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, permittee shall report effluent limits and monitoring via an electronic system to ensure timely, complete, accurate and nationally consistent data.
Check one of the following for this application to be considered complete. (Check only one.)
To access the facility participation package, visit dnr.mo.gov/env/wpp/edmr.htm.

☐ You completed and submitted with this permit application the required documentation to participate in the eDMR system.

☐ You previously submitted required documentation to participate in the eDMR system and/or you currently use the eDMR system.

☐ You submitted a written request for a waiver from electronic reporting. See instructions for information regarding waivers.

9. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions.
PLEASE SHOW LOCATION ON MAP. SEE 8(D) ABOVE.

NAME			
ADDRESS	CITY	STATE	ZIP CODE

11. I certify that I am familiar with the information contained in this application. To the best of my knowledge and belief, such information is true, complete and accurate. If granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions subject to any legitimate appeal to the Missouri Clean Water Commission available to the applicant under the Missouri Clean Water Law.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
SIGNATURE	DATE SIGNED

MO 780-1479 (04-18)

BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETE.
ALSO INCLUDE APPLICABLE ADDITIONAL FORMS.
Submitting an incomplete application may result in the application being returned.

HAVE YOU INCLUDED THE FOLLOWING?

- ☐ Appropriate fees
- ☐ Map at 1" = 2000' scale
- ☐ Signature
- ☐ Form C or 2F, if applicable
- ☐ Form D, if applicable
- ☐ Form I (Irrigation), if applicable
- ☐ Form R (Sludge), if applicable
- ☐ Revised nutrient management plan, if applicable

Environmental Operations, Inc.

Legend

- Process Recycle Basin
- Outfall
- Surface Flow Direction
- Met Pond

Planned Land Application Areas

- A Tailings
- B Tailings
- C Tailings
- D Tailings
- E Tailings
- Outfall 002 Remediation Area
- Former Processing Area
- Roadways

Note:

Illustration based on Google Earth Imagery dated 11.9.2015. This figure should only be used for general illustrative purposes and should not be used for any other purpose beyond the context of the report/letter.

Site Map

Missouri Mine Investments, LLC
Fredricktown, Missouri

Figure 2

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

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

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

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

1.00 NAME OF FACILITY

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

1.20 THIS IS A NEW FACILITY AND WAS CONSTRUCTED UNDER MISSOURI CONSTRUCTION PERMIT NUMBER (COMPLETE ONLY IF THIS FACILITY DOES NOT HAVE AN OPERATING PERMIT).

2.00 LIST THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES APPLICABLE TO YOUR FACILITY (FOUR DIGIT CODE)

A. FIRST _____ B. SECOND_____

C. THIRD_____ D. FOURTH _____

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.

OUTFALL NUMBER (LIST) _____1/4 _____1/4 SEC_____ T_____ R_____ _____COUNTY

2.20 FOR EACH OUTFALL LIST THE NAME OF THE RECEIVING WATER

OUTFALL NUMBER (LIST) RECEIVING WATER

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent and treatment units labeled to correspond to the more detailed descriptions in item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, public sewers and outfalls. If a water balance cannot by determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of 1. All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water and storm water runoff. 2. The average flow contributed by each operation. 3. The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO.	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT	
(LIST)	A. OPERATION (LIST)	B. AVERAGE FLOW (INCLUDE UNITS) (MAXIMUM FLOW)	A. DESCRIPTION	B. LIST CODES FROM TABLE A

2.40 CONTINUED

C. EXCEPT FOR STORM RUNOFF, LEAKS OR SPILLS, ARE ANY OF THE DISCHARGES DESCRIBED IN ITEMS A OR B INTERMITTENT OR SEASONAL?

☐ **YES** *(COMPLETE THE FOLLOWING TABLE)* ☐ **NO** *(GO TO SECTION 2.50)*

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

2.50 MAXIMUM PRODUCTION

A. DOES AN EFFLUENT GUIDELINE LIMITATION PROMULGATED BY EPA UNDER SECTION 304 OF THE CLEAN WATER ACT APPLY TO YOUR FACILITY?

☐ **YES** *(COMPLETE B.)* ☐ **NO** *(GO TO SECTION 2.60)*

B. ARE THE LIMITATIONS IN THE APPLICABLE EFFLUENT GUIDELINES EXPRESSED IN TERMS OF PRODUCTION (OF OTHER MEASURE OF OPERATION)?

☐ **YES** *(COMPLETE c.)* ☐ **NO** *(GO TO SECTION 2.60)*

C. IF YOU ANSWERED "YES" TO B. LIST THE QUANTITY THAT REPRESENTS AN ACTUAL MEASUREMENT OF YOUR MAXIMUM LEVEL OF PRODUCTION, EXPRESSED IN THE TERMS AND UNITS USED IN THE APPLICABLE EFFLUENT GUIDELINE AND INDICATE THE AFFECTED OUTFALLS.

1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS *(list outfall numbers)*
A. QUANTITY PER DAY	B. UNITS OF MEASURE	C. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*	

2.60 IMPROVEMENTS

A. ARE YOU NOW REQUIRED BY ANY FEDERAL, STATE OR LOCAL AUTHORITY TO MEET, ANY IMPLEMENTATION SCHEDULE FOR THE CONSTRUCTION, UPGRADING OR OPERATION OF WASTEWATER TREATMENT EQUIPMENT OR PRACTICES OR ANY OTHER ENVIRONMENTAL PROGRAMS THAT MAY AFFECT THE DISCHARGES DESCRIBED IN THIS APPLICATION? THIS INCLUDES, BUT IS NOT LIMITED TO, PERMIT CONDITIONS, ADMINISTRATIVE OR ENFORCEMENT ORDERS, ENFORCEMENT COMPLIANCE SCHEDULE LETTERS, STIPULATIONS, COURT ORDERS AND GRANT OR LOAN CONDITIONS.

☐ **YES** *(COMPLETE THE FOLLOWING TABLE)* ☐ **NO** *(GO TO 3.00)*

1. IDENTIFICATION OF CONDITION AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
				A. REQUIRED	B. PROJECTED

B. OPTIONAL: YOU MAY ATTACH ADDITIONAL SHEETS DESCRIBING ANY ADDITIONAL WATER POLLUTION CONTROL PROGRAMS *(OR OTHER ENVIRONMENTAL PROJECTS WHICH MAY AFFECT YOUR DISCHARGES)* YOU NOW HAVE UNDER WAY OR WHICH YOU PLAN. INDICATE WHETHER EACH PROGRAM IS NOW UNDER WAY OR PLANNED, AND INDICATE YOUR ACTUAL OR PLANNED SCHEDULES FOR CONSTRUCTION.

☐ **MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED.**

3.00 INTAKE AND EFFLUENT CHARACTERISTICS

A. & B. SEE INSTRUCTIONS BEFORE PROCEEDING – COMPLETE ONE TABLE FOR EACH OUTFALL – ANNOTATE THE OUTFALL NUMBER IN THE SPACE PROVIDED.
NOTE: TABLE 1 IS INCLUDED ON SEPARATE SHEETS NUMBERED FROM PAGE 6 TO PAGE 7.

C. USE THE SPACE BELOW TO LIST ANY OF THE POLLUTANTS LISTED IN PART B OF THE INSTRUCTIONS, WHICH YOU KNOW OR HAVE REASON TO BELIEVE IS DISCHARGED OR MAY BE DISCHARGED FROM ANY OUTFALL. FOR EVERY POLLUTANT YOU LIST, BRIEFLY DESCRIBE THE REASONS YOU BELIEVE IT TO BE PRESENT AND REPORT ANY ANALYTICAL DATA IN YOUR POSSESSION.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

3.10 BIOLOGICAL TOXICITY TESTING DATA

DO YOU HAVE ANY KNOWLEDGE OR REASON TO BELIEVE THAT ANY BIOLOGICAL TEST FOR ACUTE OR CHRONIC TOXICITY HAS BEEN MADE ON ANY OF YOUR DISCHARGES OR ON RECEIVING WATER IN RELATION TO YOUR DISCHARGE WITHIN THE LAST THREE YEARS?

☐ YES (IDENTIFY THE TEST(S) AND DESCRIBE THEIR PURPOSES BELOW.) ☑ NO (GO TO 3.20)

3.20 CONTRACT ANALYSIS INFORMATION

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

☑ **YES** *(LIST THE NAME, ADDRESS AND TELEPHONE NUMBER OF AND POLLUTANTS ANALYZED BY EACH SUCH LABORATORY OR FIRM BELOW.)* ☐ **NO** *(GO TO 3.30)*

A. NAME	B. ADDRESS	C. TELEPHONE *(area code and number)*	D. POLLUTANTS ANALYZED *(list)*
Eurofins	Western Environmental Testing Laboratory 475 E. Greg Street #119 Sparks, Nevada 89431-6548	(775) 355-0202	All reported

3.30 CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS APPLICATION AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Marty Thomas, VP Operations, Missouri Cobalt	314-413-3647
SIGNATURE (SEE INSTRUCTIONS)	**DATE SIGNED**
	5-16-2019

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

FORM C
TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS

OUTFALL NO.

PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS *(specify if blank)*		4. INTAKE *(optional)*		
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(if available)*		C. LONG TERM AVRG. VALUE *(if available)*		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
A. Biochemical Oxygen Demand (BOD)												
B. Chemical Oxygen Demand (COD)												
C. Total organic Carbon (TOC)												
D. Total Suspended Solids (TSS)												
E. Ammonia *(as N)*												
F. Flow	VALUE		VALUE		VALUE					VALUE		
G. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
H. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
I. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B – Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark column 2A for any pollutant, you must provide the results for at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(if available)*		C. LONG TERM AVRG. VALUE *(if available)*		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS														
A. Bromide (24959-67-9)														
B. Chlorine, Total Residual														
C. Color														
D. Fecal Coliform														
E. Fluoride (16984-48-8)														
F. Nitrate - Nitrate *(as N)*														

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(if available)*		C. LONG TERM AVRG. VALUE *(if available)*		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
G. Nitrogen, Total Organic *(as N)*														
H. Oil and Grease														
I. Phosphorus *(as P),* Total (7723-14-0)														
J. Sulfate *(as SO^4)* (14808-79-8)														
K. Sulfide *(as S)*														
L. Sulfite (as SO^3) (14265-45-3)														
M. Surfactants														
N. Aluminum, Total (7429-90-5)														
O. Barium, Total (7440-39-3)														
P. Boron, Total (7440-42-8)														
Q. Cobalt, Total (7440-48-4)														
R. Iron, Total (7439-89-6)														
S. Magnesium, Total (7439-95-4)														
T. Molybdenum, Total (7439-98-7)														
U. Manganese, Total (7439-96-5)														
V. Tin, Total (7440-31-5)														
W. Titanium, Total (7440-32-6)														

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE *(if available)*		C. LONG TERM AVRG. VALUE *(if available)*		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, AND TOTAL PHENOLS														
1M. Antimony, Total (7440-36-9)														
2M. Arsenic, Total (7440-38-2)														
3M. Beryllium, Total (7440-41-7)														
4M. Cadmium, Total (7440-43-9)														
5M. Chromium III (16065-83-1)														
6M. Chromium VI (18540-29-9)														
7M. Copper, Total (7440-50-8)														
8M. Lead, Total (7439-92-1)														
9M. Mercury, Total (7439-97-6)														
10M. Nickel, Total (7440-02-0)														
11M. Selenium, Total (7782-49-2)														
12M. Silver, Total (7440-22-4)														
13M. Thallium, Total (7440-28-0)														
14M. Zinc, Total (7440-66-6)														
15M. Cyanide, Amenable to Chlorination														
16M. Phenols, Total														
RADIOACTIVITY														
(1) Alpha Total														
(2) Beta Total														
(3) Radium Total														
(4) Radium 226 Total														

INSTRUCTIONS FOR FILLING OUT APPLICATION FOR DISCHARGE PERMIT FORM C – MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS.

All blanks must be filled in when the application is submitted to the appropriate regional office (see map). The form must be signed as indicated.

This application is to be completed only for wastewater facilities with a discharge. Include any facility with possibility of discharge, even if normally there is no discharge. If this form is not adequate for you to describe your existing operation, then sufficient information should be attached so that an evaluation of the discharge can be made.

1.00 Name of Facility – By what title or name is this facility known locally?

1.10 and 1.20 Self-explanatory.

2.00 List in descending order of significance the four digit Standard Industrial Classification (SIC) codes that best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words.

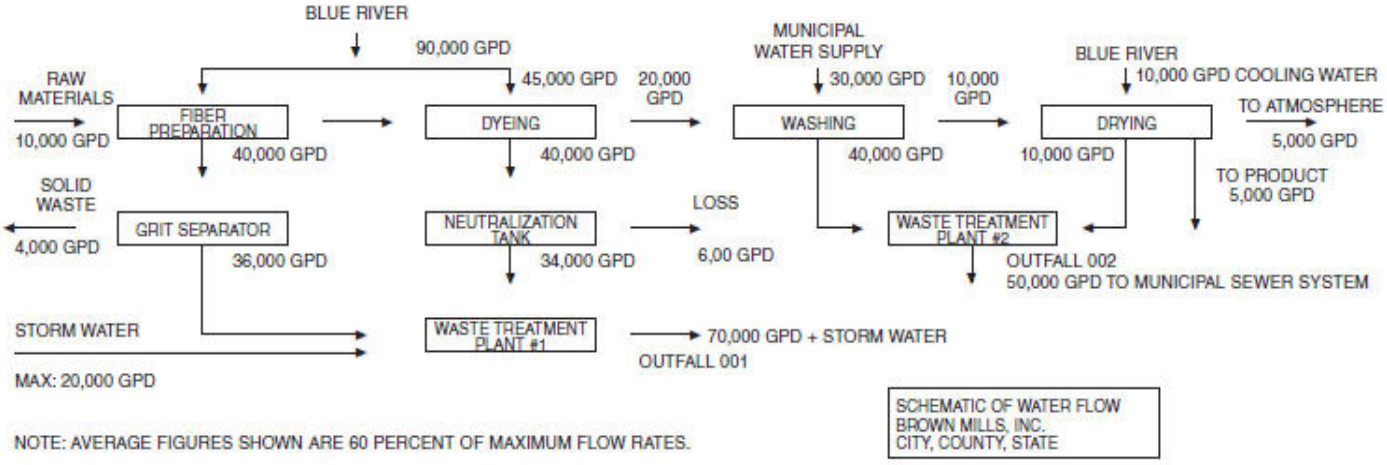
SIC code numbers are descriptions that may be found in the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, that is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual. If you have any questions concerning the appropriate SIC code for your facility, contact the Missouri Department of Natural Resources Regional office in your area (see map).

2.10 Point of discharge should be given in terms of the legal description of the waste treatment plant, location or sufficient information so that it may be located.

2.20 Receiving Water – the name of the stream to which the discharge is directed and any subsequent tributary until a continuous flowing stream is reached.

2.30 Self-explanatory.

2.40 A. The line drawing should show generally the route taken by water in your facility from intake to discharge. Show all operations contributing wastewater, including process and production areas, sanitary flows, cooling water and storm water runoff. You may group similar operations into a single unit labeled to correspond to the more detailed listing. The water balance should show average and maximum flows. Show all significant losses of water to products, atmosphere, discharge and public sewer systems. You should use actual measurements whenever available; otherwise, use your best estimate. An example of any acceptable line drawing appears below.



B. List all sources of wastewater to each outfall. Operations may be described in general terms (for example, “dye-making reactor” or a distillation tower”). You may estimate the flow contributed by each source if no data is available, and for storm water, you may use any reasonable measure of duration, volume or frequency. For each treatment unit, indicate its size, flow rate and retention time, and describe the ultimate disposal of any solid or liquid wastes not discharged. Treatment units should be listed in order and you should select the proper code from Table A to fill in column 3B for each treatment unit. Insert “XX” into column 3B if no code corresponds to a treatment unit you list.

TABLE A – CODES FOR TREATMENT UNITS

PHYSICAL TREATMENT PROCESSES

1-A	Ammonia Stripping	1-M	Grit Removal
1-B	Dialysis	1-N	Microstraining
1-C	Diatomaceous Earth Filtration	1-O	Mixing
1-D	Distillation	1-P	Moving Bed Filters
1-E	Electrodialysis	1-Q	Multimedia Filtration
1-F	Evaporation	1-R	Rapid Sand Filtration
1-G	Flocculation	1-S	Reverse Osmosis (Hyperfiltration)
1-H	Flotation	1-T	Screening
1-I	Foam Fractionation	1-U	Sedimentation (Settling)
1-J	Freezing	1-V	Slow Sand Filtration
1-K	Gas-Phase Separation	1-W	Solvent Extraction
1-L	Grinding (Comminutors)	1-X	Sorption

CHEMICAL TREATMENT PROCESSES

2-A	Carbon Absorption	2-G	Disinfection (Ozone)
2-B	Chemical Oxidation	2-H	Disinfection (Other)
2-C	Chemical Precipitation	2-I	Electrochemical Treatment
2-D	Coagulation	2-J	Ion Exchange
2-E	Dechlorination	2-K	Neutralization
2-F	Disinfection (Chlorine)	2-L	Reduction

BIOLOGICAL TREATMENT PROCESSES

3-A	Activated Sludge	3-E	Pre-Aeration
3-B	Aerated Lagoons	3-F	Spray Irrigation/Land Application
3-C	Anaerobic Treatment	3-G	Stabilization Ponds
3-D	Nitrification-Denitrification	3-H	Trickling Filtration

OTHER PROCESSES

4-A	Discharge to Surface Water	4-C	Reuse/Recycle of Treated Effluent
4-B	Ocean Discharge Through Outfall	4-D	Underground Injection

SLUDGE TREATMENT AND DISPOSAL PROCESSES

5-A	Aerobic Digestion	5-M	Heat Drying
5-B	Anaerobic Digestion	5-N	Heat Treatment
5-C	Belt Filtration	5-O	Incineration
5-D	Centrifugation	5-P	Land Application
5-E	Chemical Conditioning	5-Q	Landfill
5-F	Chlorine Treatment	5-R	Pressure Filtration
5-G	Composting	5-S	Pyrolysis
5-H	Drying Beds	5-T	Sludge Lagoons
5-I	Elutriation	5-U	Vacuum Filtration
5-J	Flotation Thickening	5-V	Vibration
5-K	Freezing	5-W	Web Oxidation
5-L	Gravity Thickening		

2.40 C. A discharge is intermittent unless it occurs without interruption during the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes or other similar activities. A discharge is seasonal if it occurs only during certain parts of the year. Fill in every applicable column in this item for each source of intermittent or seasonal discharges. Base your answers on actual data whenever available; otherwise, provide your best estimate. Report the highest daily value for flow rate and total volume in the "Maximum Daily" columns. Report the average of all daily values measures during days when discharge occurred within the last year in the "Long Term Average" columns.

2.50 A. All effluent guidelines promulgated by EPA appear in the Federal Register and are published annually in 40 CPR Subchapter N. A guideline applies to you if you have any operations contributing process wastewater in any subcategory covered by BPT, BCT, or BAT guidelines. If you are unsure whether you are covered by a promulgated effluent guideline, check with your Missouri Department of Natural Resources' Regional Office. You must check yes if an applicable effluent guideline has been promulgated, even if the guideline limitations are being contested in court. If you believe that a promulgated effluent guideline has been remanded for reconsideration by a court and does not apply to your operations, you may check no.

B. An effluent guideline is expressed in terms of production (or other measure of operation) if the limitations are expressed as mass of pollutant per operational parameter; for example, "pounds of BOD per cubic foot of logs from which bark is removed," or "pounds of TSS per megawatt hour of electrical energy consumed by smelting furnace." An example of a guideline not expressed in terms of a measure of operation is one which limits the concentration of pollutants.

C. This item must be completed only if you checked yes to item B. The production information requested here is necessary to apply effluent guidelines to your facility and you may not claim it as confidential. However, you do not have to indicate how the reported information was calculated.

Report quantities in the units of measurement used in the applicable effluent guideline. The figures provided must be a measure of actual operation over a one month period, such as the production for the highest month during the last twelve months, or the monthly average production for the highest year of the last five years, or other reasonable measure of actual operation, but may not be based on design capacity or on predictions of future increases in operation.

2.60 A. If you check yes to this question, complete all parts of the chart, or attach a copy of any previous submission you have made containing the same information.

B. You are not required to submit a description of future pollution control projects if you do not wish to or if none is planned.

3.00 These items require you to collect and report data on the pollutants discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and must be completed in accordance with the specific instructions for that part. The following general instructions apply to the entire item.

GENERAL INSTRUCTIONS. Part A requires you to report at least one analysis for each pollutant. Part B requires you to mark "X" in either the "Believe Present" column or the "Believe Absent" column (column 2A or 2B, Part B) based on you best estimate, and test for those which you believe to be present. Part C requires you to list any of a group of pollutants which you believe to be present, with a brief explanation of why you believe it to be present. (See specific instructions on the form and below Parts A through C).

Base your determination that a pollutant is present in or absent from your discharge on your knowledge of your raw materials, maintenance chemicals, intermediate and final products and byproducts, and any previous analyses known to you of your effluent or of any similar effluent. (For example, if you manufacture pesticides, you should expect those pesticides to be present in contaminated storm water runoff.) If you would expect a pollutant to be present solely as a result of its presence in your intake water, you must mark "Believe Present" but you are not required to analyze for that pollutant. Instead, mark an "X" in the "Intake" column.

REPORTING. All levels must be reported as a concentration and as total mass. You may report some or all of the required data by attaching separate sheets of paper. (Use the following abbreviations in the columns headed "Units" (column 3, Part A, and column 4, Part B).

CONCENTRATION

ppm	parts per million
mg/L	milligrams per liter
ppb	parts per billion
ug/L	micrograms per liter

MASS

lbs	pounds
ton	tons (English tons)
mg	Milligrams
g	grams
kg	kilograms
T	tonnes (metric tons)

If you measure only one daily value, complete only the “Maximum Daily Values” columns and insert “1” into the “number of analyses” columns (columns 2A and 2B, Part A, and columns 3A and 3D, Part B). The Missouri Department of Natural Resources may require you to conduct additional analyses to further characterize your discharges.

For composite samples, the daily value is the total mass or average concentration found in a complete sample taken over the operating hours of the facility during a 24 hour period; for grab samples, the daily value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

If you measure more than one daily value for a pollutant, determine the average of all values within the last year and report the concentration and mass under the “Long Term Average Values” columns (column 2C, Part A, and column 3C, Part B), and the total number of daily values under the “Number of Analyses” columns (column 2D, Part A, and column 3D, Part B). Also, determine the average of all daily values taken during each calendar month, and report the highest average of all daily values taken during each calendar month, and report the highest average under the “Maximum 30 Day Values” columns (column 2B, Part A, and column 3B, Part B).

SAMPLING. The collection of the samples for the reported analyses should be supervised by a person experienced in performing sampling of industrial wastewater. You may contact your Missouri Department of Natural Resources’ Regional Office for detailed guidance on sampling techniques and for answers to specific questions. Any specific requirements contained in the applicable analytical methods should be followed for sample containers, sample preservation, holding times, the collection of duplicate samples, etc. The time when you sample should be representative of your normal operation, to the extent feasible, with all processes which contribute wastewater in normal operation and with your treatment system operating properly with no system upsets. Samples should be collected from the center of the flow channel, where turbulence is at a maximum, at a site specified in your present permit or at any site adequate for the collection of a representative sample.

Grab and composite samples are defined as follows:

GRAB SAMPLE. An individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.

COMPOSITE SAMPLE. A combination of at least eight sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

ANALYSIS. You must use test methods promulgated in 40 CFR Part 136; however, if none has been promulgated for a particular pollutant, you may use any suitable method for measuring the level of the pollutant in your discharge provided that you submit a description of the method or a reference to a published method. Your description should include the sample holding times, preservation techniques and the quality control measures which you used.

If you have two or more substantially identical outfalls, you may request permission from the Missouri Department of Natural Resources to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the Missouri Department of Natural Resources, on a separate sheet attached to the application form, identify which outfall you did test and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

REPORTING OF INTAKE DATA. You are not required to report data under the "Intake" columns unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. National Pollutant Discharge Elimination System (NPDES) regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, under the Intake columns report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

1. A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)

2. A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)

3. When applicable, a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. For example, when the pollutant represents a class of compounds. Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.

3.00 Part A must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. However, at your request, the Missouri Department of Natural Resources may waive the requirements to test for one or more of these pollutants, upon a determination that testing for the pollutant(s) is not appropriate for your effluent.

Use composite samples for all pollutants in this part, except use grab samples for pH and temperature. See discussion in instructions above for definitions of the columns in Part A. The "Long Term Average Values" column (column 2C) and "Maximum 30 Day Values" column (column 2B) are not compulsory but should be filled out if data is available.

3.00 Part B must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff.

Use composite samples for all pollutants you analyze for in this part, except use grab samples for residual chlorine, oil and grease and fecal coliform. The Long Term Average Values column (column 3C) and Maximum 30 Day Values column (column 3B) are not compulsory but should be filled out if data is available.

3.00 List any pollutants in Table B that you believe to be present and explain why you believe them to be present in part C. No analysis is required, but you have analytical, you must report it.

TABLE B – TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES REQUIRED TO BE IDENTIFIED BY APPLICANTS IF EXPECTED TO BE PRESENT

TOXIC POLLUTANT

Asbestos

HAZARDOUS SUBSTANCES

Acetaldehyde
Allyl alcohol
Allyl chloride
Amyl acetate
Aniline
Benzonitrile
Benzyl chloride
Butyl acetate
Butylamine
Captan

HAZARDOUS SUBSTANCES

Dichlorvos
Diethylamine
Dimethylamine
Dintrobenzene
Diquat
Disulfoton
Diuron
Epichlorohydrin
Ethion
Ethylene diamine
Ethylene dibromide
Formaldehyde
Furfural
Guthion

HAZARDOUS SUBSTANCES

Nalad
Napthenic acid
Nitrotoluene
Parathion
Phenolsulfonate
Phosgene
Propargite
Propylene oxide
Pyrethrins
Quinoline
Resorcinol
Strontium
Strychnine
Sytrene

TABLE B – (continued)

HAZARDOUS SUBSTANCES	HAZARDOUS SUBSTANCES	HAZARDOUS SUBSTANCES
Carbaryl	Isoprene	2, 4, 5-T (2,4,5-Trichloro-phenoxyacetic acid)
Carbofuran	Isopropanolamine	TDE (Tetrachlorodiphenyl ethane)
Carbon disulfide	Kelthane	2, 4, 5-TP (2-(2,4,5-Trichloro-phenoxy) propanoic acid)
Chlorpyrifos	Kepone	Trichlorofon
Coumaphos	Malathion	Triethanolamine
Cresol	Mercaptodimethur	Triethaylamine
Crotonaldehyde	Methoxychlor	Uranium
2,4-D (2,4-Dichloro-Phenoxyacetic acid)	Methyl mercaptan	Vanadium
Diazinon	Methyl parathion	Vinyl acetate
Dicamba	Mevinphos	Xylene
Dichlobenil	Mexacarbate	Xylenol
2,2-Dichloropropionic acid	Monethyl amine	Zirconium
	Monomethyl amine	

3.10 Self-explanatory. Additional information may be requested by the Missouri Department of Natural Resources.

3.20 Self-explanatory.

3.30 The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(c)(2) of the Clean Water Act provides that “Any person who knowingly makes any false statement, representation, or certification in any application . . . shall upon conviction, be punished by a fine of no more $10,000 or by imprisonment for not more than six months, or both.

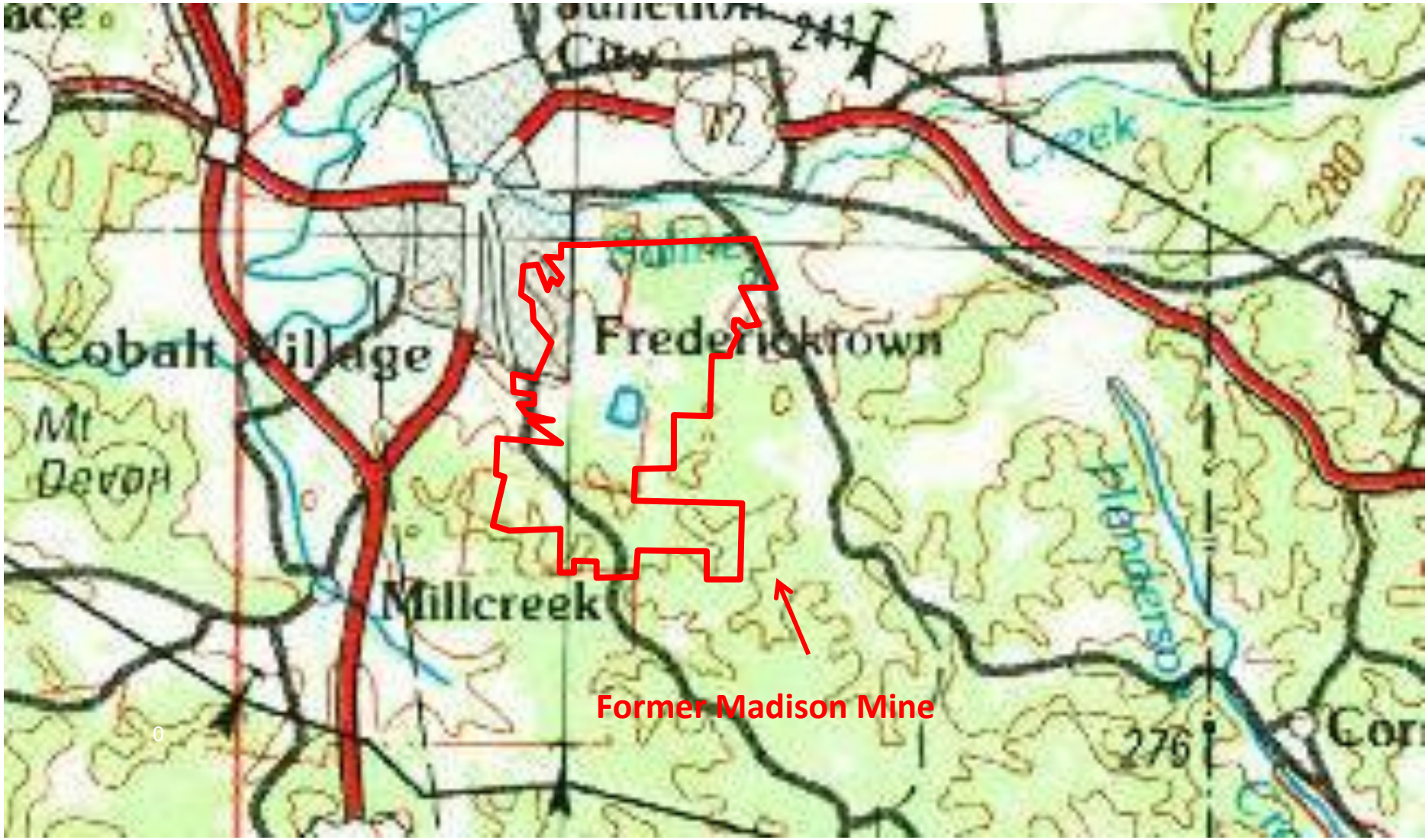
All applications must be signed as follows and the signature must be original.

A. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.

B. For a partnership or sole proprietorship, by a general partner or the proprietor.

C. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

Environmental Operations, Inc.
CLEARING THE WAY



North

USGS 7.5-Minute Topographic Quadrangle Map
Rolla, MO, 1990
Contour Interval: 100 Feet

Facility Topographic Map
Missouri Cobalt
Former Madison Mine
Fredericktown, Missouri

Environmental Operations, Inc.

Legend

- Process Recycle Basin
- Outfall
- Surface Flow Direction
- Met Pond

Planned Land Application Areas

- A Tailings
- B Tailings
- C Tailings
- D Tailings
- E Tailings
- Outfall 002 Remediation Area
- Former Processing Area
- Roadways

Note:

Illustration based on Google Earth Imagery dated 11.9.2015. This figure should only be used for general illustrative purposes and should not be used for any other purpose beyond the context of the report/letter.

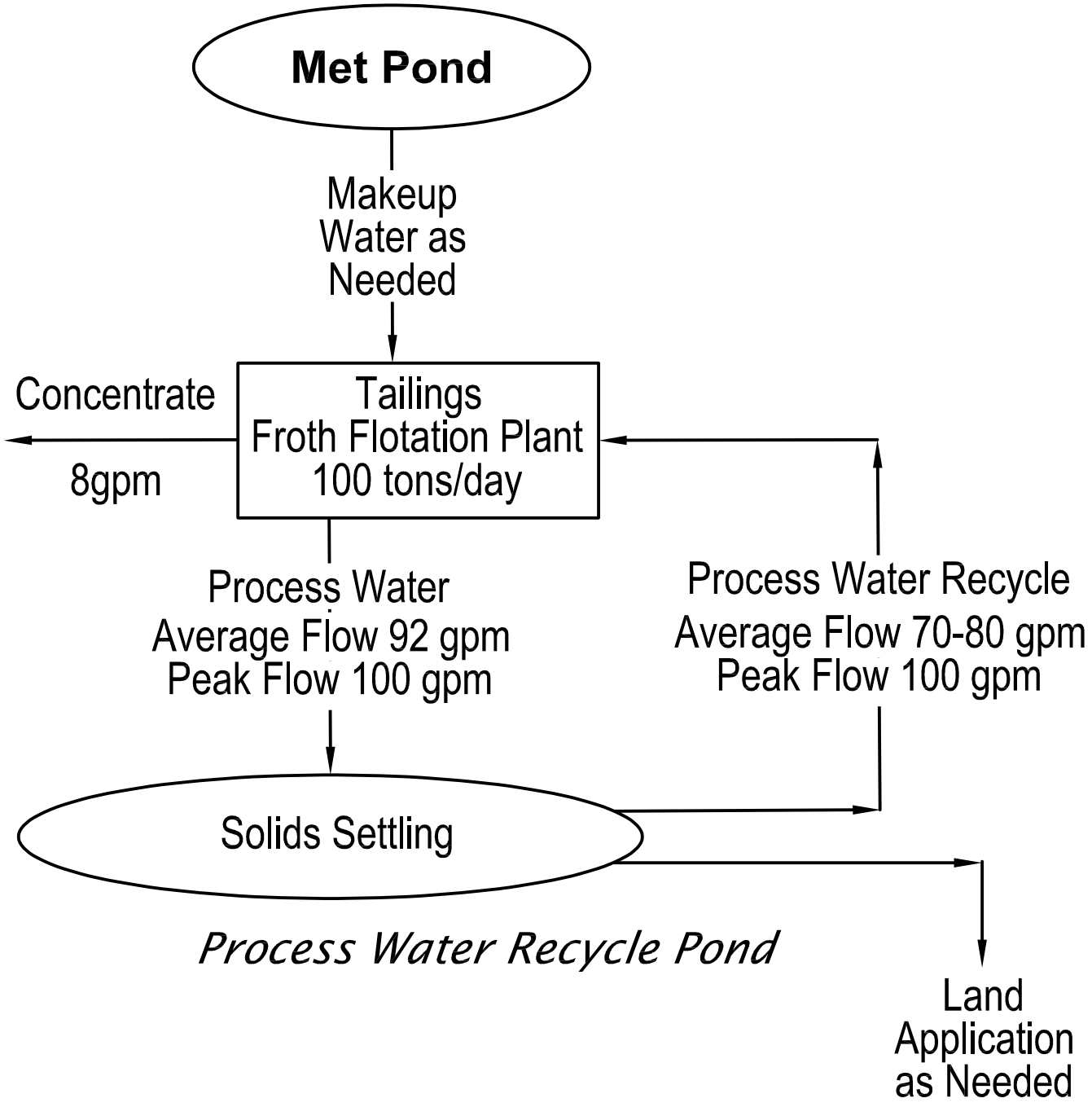
Site Map

Missouri Mine Investments, LLC
Fredricktown, Missouri

Figure 2

Environmental Operations, Inc.

Not to Scale



Process Flow Diagram
Missouri Cobalt Tailings Processing Plant
Former Madison Mine
Fredricktown, Missouri

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM I – PERMIT APPLICATION FOR OPERATION OF WASTEWATER IRRIGATION SYSTEMS

FOR AGENCY USE ONLY
PERMIT NUMBER MO -
DATE RECEIVED

INSTRUCTIONS: The following forms must be submitted with Form I: FORM B or B2 for domestic wastewater.
FORM A for industrial wastewater.

1. FACILITY INFORMATION

1.1 Facility Name

1.2 Permit Number
MO- _____

1.3 Type of wastewater to be irrigated: ☐ Domestic ☐ Municipal ☐ State/National Park ☐ Seasonal business
☐ Municipal with Pretreatment Program or Significant Industrial Users ☐ Other (explain) _____

SIC Codes (list all that apply, in order of importance) _____

1.4 Months when the business or enterprise will operate or generate wastewater:
☐ 12 months per year ☐ Part of year (list Months): ___

1.5 This system is designed for:
☐ No-discharge ☐ Partial irrigation when feasible and discharge rest of time.
☐ Irrigation during recreation season (April – October) and discharge during November – March.
☐ Other (explain) ___

1.6 List the Facility outfalls which will be applicable to the irrigation system.
Outfall Numbers: _____

2. STORAGE BASINS

2.1 Number of storage basins: _____
Type of basin: ☐ Steel ☐ Concrete ☐ Fiberglass ☐ Earthen
☐ Earthen with membrane liner

3. LAND APPLICATION SYSTEM

3.1 Number of irrigation sites _____ Total Acres _____
Location: ___ ¼, ___ ¼, ___ ¼, Sec ___ T ___ R ___ _____ County _____ Acres
Location: ___ ¼, ___ ¼, ___ ¼, Sec ___ T ___ R ___ _____ County _____ Acres
Attach pages as needed.

3.2 Attach a site map showing topography, storage basins, irrigation sites, property boundary, streams, wells, roads, dwellings, and other pertinent features.

3.3 Type of vegetation: ☐ Grass hay ☐ Pasture ☐ Timber ☐ Row crops ☐ Other (describe) _____

3.4 Wastewater flow (dry weather) gallons/day:
Average annual: _____ Seasonal _____ Off-season _____
Months of seasonal flow: _____

3. LAND APPLICATION SYSTEM (continued)

3.5 Land Application rate per acre (design flow including 1 in 10 year stormwater flows):

Design: 0.33 inches/year _____ inches/hour _____ inches/day 0.035 inches/week

Actual: 0.22 inches/year _____ inches/hour _____ inches/day 0.007 inches/week

Total Irrigation per year (gallons): 900,102 Design 600,070 Actual

Actual months used for Irrigation (check all that apply):

☐ Jan ☑ Feb ☐ Mar ☐ Apr ☑ May ☑ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☐ Dec

3.6 Land Application Rate is based on:

☐ Nutrient Management Plan (N&P)

☑ Hydraulic Loading

☐ Other (describe) _____

3.7 Equipment type: ☐ Sprinklers ☐ Gated pipe ☐ Center pivot ☐ Traveling gun ☐ Other (describe) _____

Equipment Flow Capacity: 200 Gallons per hour Varies Total hours of operation per year

3.8 **Public Use Areas**. Public access shall not be allowed to public use area irrigation sites when application is occurring. Method of Public Access Restriction:

☑ Site is Fenced ☐ Wastewater disinfection prior to irrigation ☑ Site is not for public use

☐ Other (describe): _____

3.9 Separation distance (in feet) from the outside edge of the wetted irrigation area to nearby down gradient features:

____ Permanent flowing stream ____ Losing Stream ____ Intermittent (wet weather) stream ____ Lake or pond

____ Property boundary ____ Dwellings ____ Water supply well X Other (describe) 1000' from property line.

3.10 The facility must develop and retain an Operation and Maintenance (O&M) Plan for the irrigation system.

Date of O&M Plan: 7/30/2019

4. CERTIFICATION

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

OWNER OR AUTHORIZED REPRESENTATIVE	OFFICIAL TITLE
Marty Thomas	VP, Operations, Missouri Cobalt
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE
mthomas@mocobalt.com	314-413-3647
SIGNATURE	DATE SIGNED
	5-22-2019

780-1686 (08-14)

Attachment to Form I – Permit Application for Operation of Wastewater Irrigation System Proposed Tailings Processing Plant at the Former Madison Mine Site, Fredericktown, MO

Section 2 – Storage Basin

The proposed storage basin will be constructed to enable wastewater treatment as part of the recycling process. Refer to the Process Flow Diagram, attached.

The basin surface area will cover a total of 1.23 acres, with an approximate 10 feet depth. See the attached Site Map for basin location.

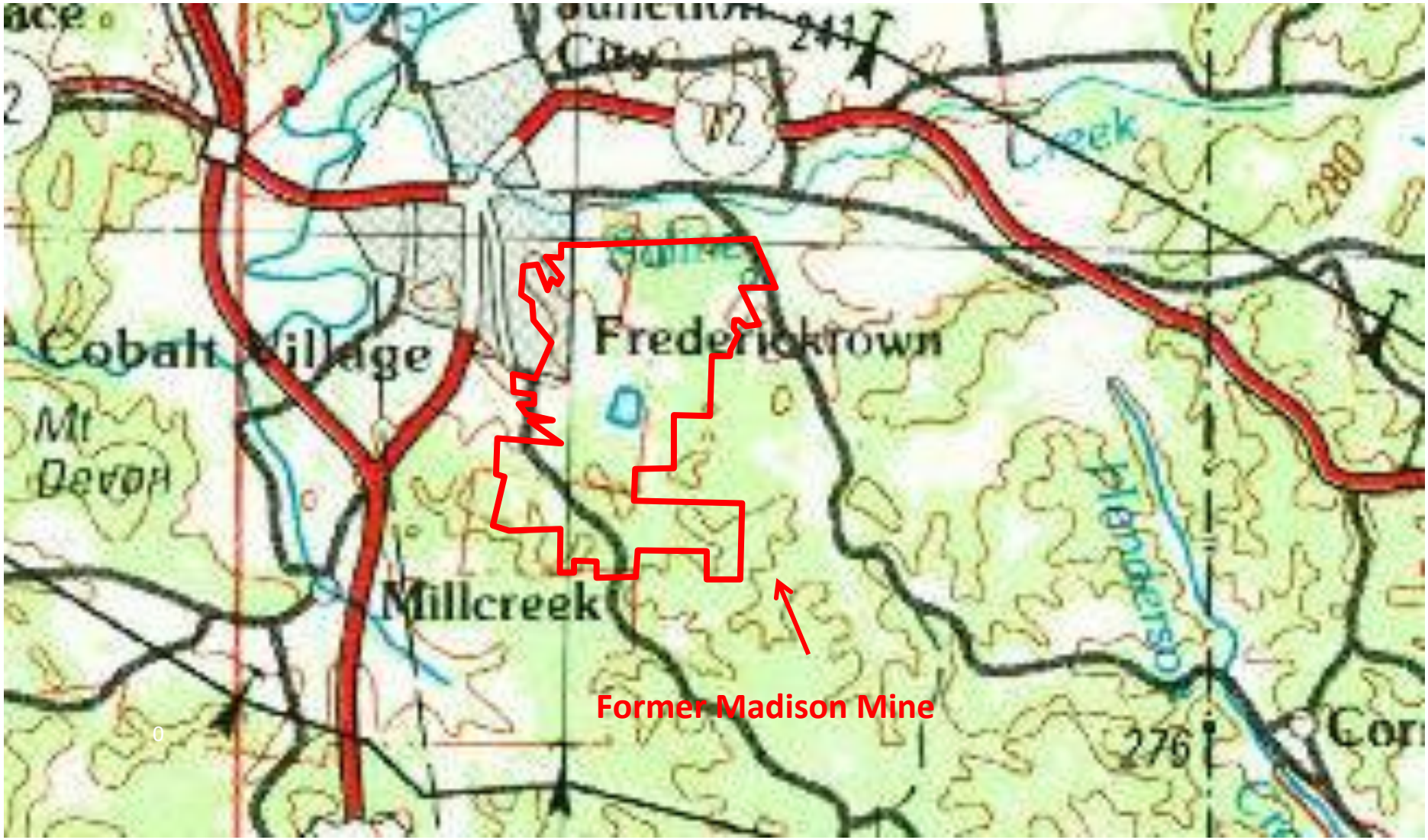
Calculations and lab scale testing indicate a negative water balance during dry periods, due to water losses through evaporation in the ponds and process dryer, and losses in the tailings concentrate and tailings slurry. Makeup water will be obtained from the nearby Met Pond as required. Storm water will cause a positive water balance during wet periods. Excess water will be land applied as necessary to maintain the desired water level in the basins. Freeboard and extra storage capacity in the ponds will be used to store excess water until it can be land applied. Land application will be used on-site for dust control on site roadways, and for irrigation of remedial cap vegetation. Note that the ponds are designed to prevent storm water run-on, and there is no source of storm water to the system other than precipitation falling directly onto the ponds.

The proposed basin will be constructed of earth with a clay liner. Testing of soils to be used for liner material indicated a permeability of 9.9×10^{-9} cm/sec. See test results, attached.

Section 3 – Land Application System

The proposed areas for land application of the Processing Plant wastewater are the same as specified in the Missouri Mining Investments, LLC Operating Permit MO-0098752.

Environmental Operations, Inc.
CLEARING THE WAY



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Missouri Mine Investments, LLC
Fredricktown, Missouri

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Environmental Operations, Inc.

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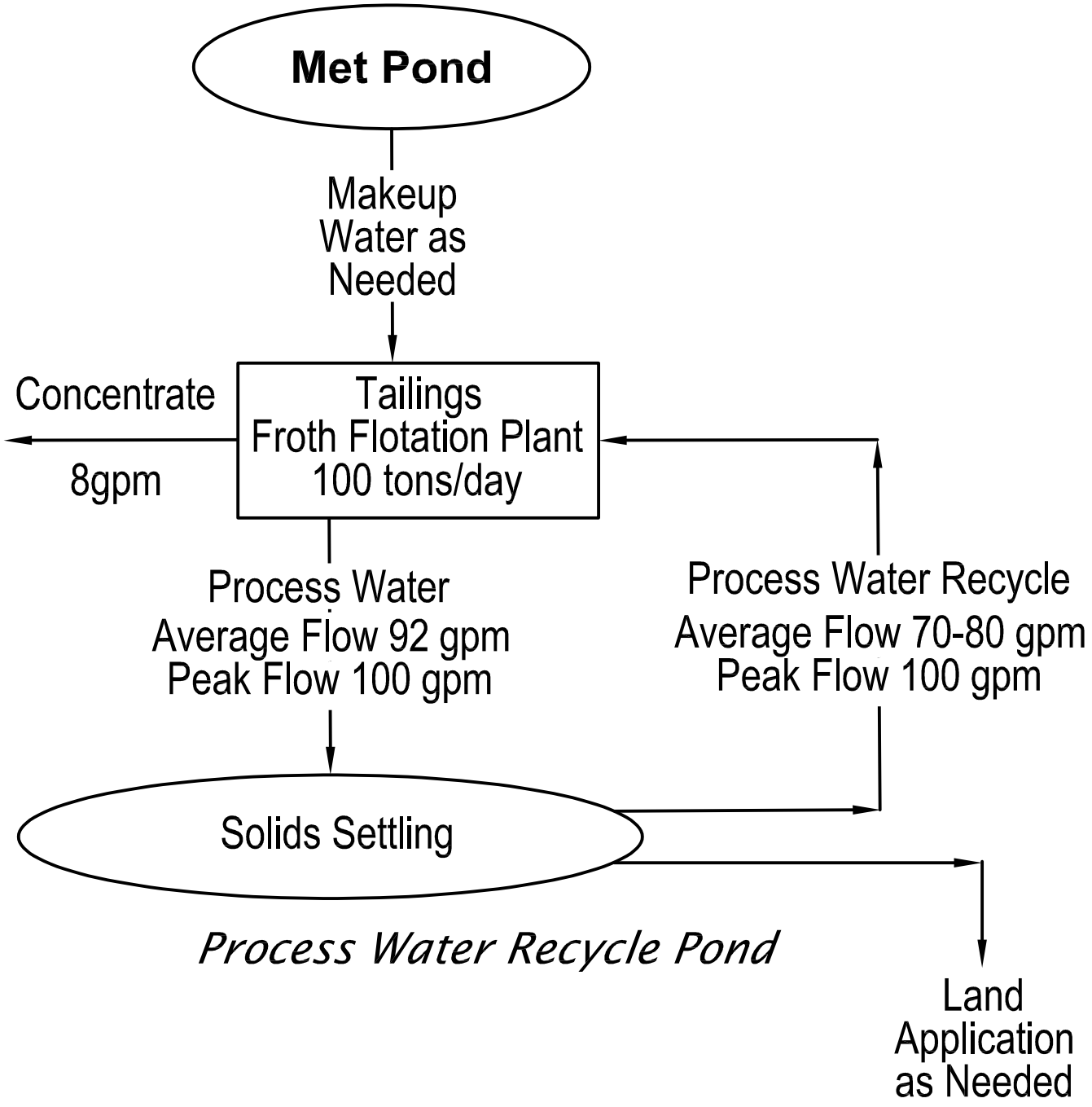


Process Flow Diagram
Missouri Cobalt Tailings Processing Plant
Former Madison Mine
Fredricktown, Missouri

MILLENNIA
PROFESSIONAL SERVICES

Millennia Professional Services

11 Executive Drive, Suite 12, Farview Heights, Illinois 62208 (618) 624-8610

May 14, 2019
Project MG19020

David Bushong
Missouri Cobalt, LLC
1530 Second Street
St. Louis, Missouri 63104

Subject Laboratory Test Results
Pond Liner Material
Missouri Cobalt Facility
Fredericktown, Missouri

Dear Mr. Bushong:

Millennia Professional Services (MPS) is pleased to present the results of laboratory testing performed on a sample of soil that Missouri Cobalt, LLC has proposed for use as pond liner material. MPS understands that the Missouri Department of Natural Resources (MDNR) will require that the liner material be placed and compacted at a density of at least 95 percent of the maximum dry unit weight (MDUW) of the material, within a moisture content range of two percent dry to four percent wet of the optimum water content (OWC). The minimum required hydraulic conductivity is 1.0 x 10-7 cm/sec.

The testing was performed in accordance with the following test methods:

Visual Classification	ASTM D2488
Liquid and Plastic Limits	ASTM D4318
Moisture-Density Relationship (Standard Proctor)	ASTM D698-B
Hydraulic Conductivity	ASTM D5084

The tests results are summarized below:

Visual Classification	Red-brown Fat Clay (CH)
Liquid and Plastic Limits	LL = 93, PL = 31, PI = 62
Moisture-Density (Standard Proctor)	MDUW = 88.3 pcf, OWC = 29.3%
Hydraulic Conductivity	9.9x10-9 cm/sec

The results of the moisture-density relationship and the hydraulic conductivity testing are attached.

We appreciate this opportunity to be of service to you and would be pleased to discuss any aspect of these test results with you at your convenience.

Sincerely,

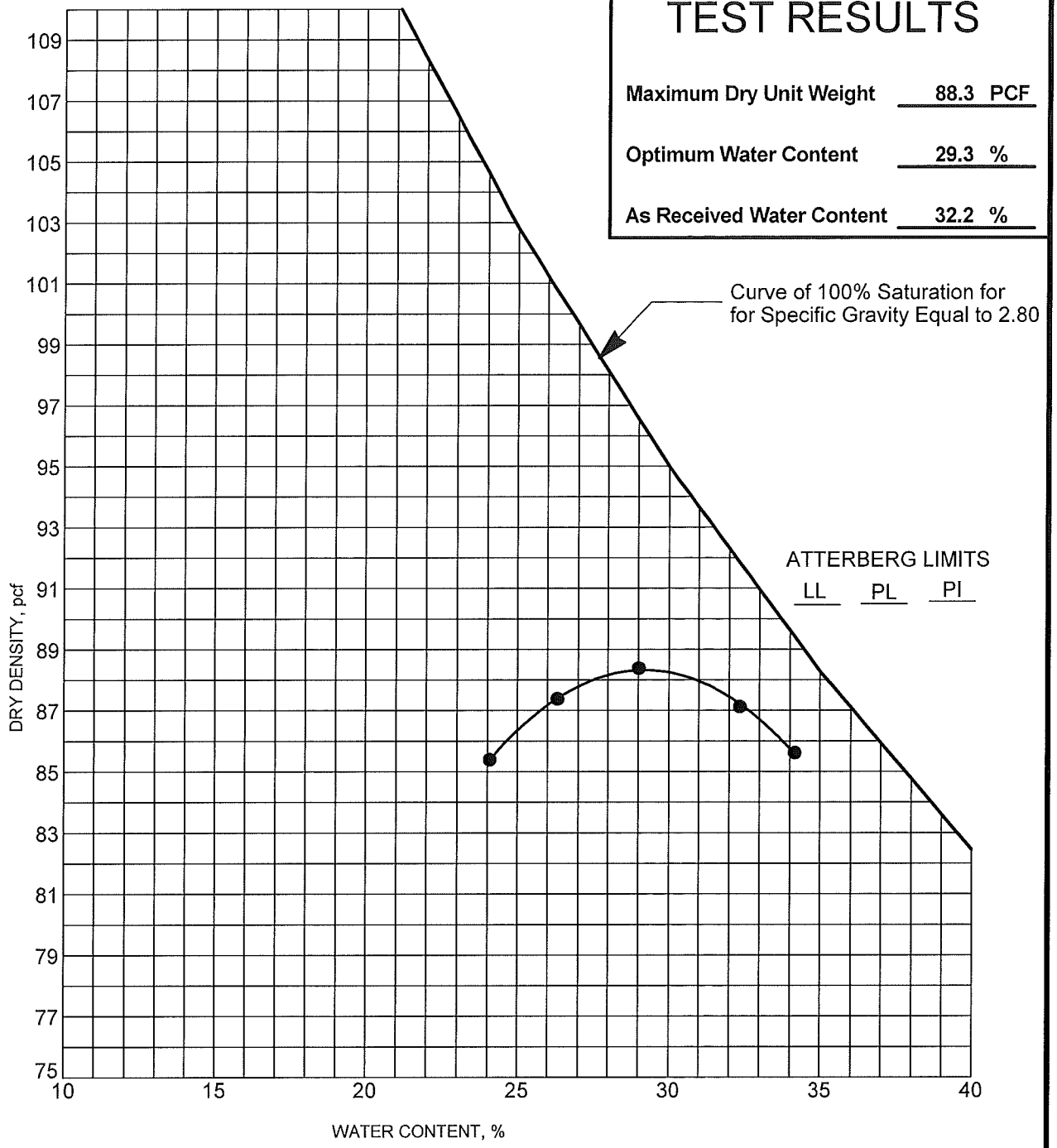
Millennia Professional Services

John S. Kottemann, P.E

Attachments: Moisture-Density Relationship
Hydraulic Conductivity Summary and Test Data

TEST RESULTS

Maximum Dry Unit Weight	88.3 PCF
Optimum Water Content	29.3 %
As Received Water Content	32.2 %



Sample No. **Bulk 1**
Depth **--**
Test Method **ASTM D698-B (Standard)**

Source of Material
Description of Material **Red-brown, FAT CLAY - CH**

MOISTURE-DENSITY RELATIONSHIP

Project Number: J022300.02.6217
Project: Tailings Pond Liner
Location: Fredericktown, Missouri

HYDRAULIC CONDUCTIVITY SUMMARY

Project Identification: Tailings Pond Liner
Location: Fredericktown, Missouri

Sample Number	Optimum Moisture Content, %	Maximum Dry Unit Weight, pcf	Percent Compact	Moisture Content, %	Dry Unit Weight, pcf	Hydraulic Conductivity, cm/sec	Range of Hydraulic Gradient
Bulk 1	29.3	88.3	99.0	33.3	87.4	9.9×10^{-9}	2.7 - 21.5

Notes and abbreviations:
% - Percent
cm/sec - Centimeters per second
pcf - Pounds per cubic foot

HYDRAULIC CONDUCTIVITY TEST DATA

(ASTM D 5084)

JOB NO.:	J022300.02.6217			**Initial Unit Weight**		**Unit Weight as Tested**	
SAMPLE ID:	LSN-3079	ASTM D698 Results		WET UNIT WEIGHT, pcf:	116.5	117.2	WET UNIT WEIGHT, pcf:
LOCATION:	Tailings Pond Liner	Maximum Dry Unit Weight, pcf	88.3	DRY UNIT WEIGHT, pcf:	87.4	86.5	DRY UNIT WEIGHT, pcf:
MATERIAL:	CH	Optimum Water Content, %	29.3	**Percent Compact:**	**99.0%**		

	Initial	As Tested**		Initial	As Tested	INITIAL MOISTURE CONTENT		FINAL MOISTURE CONTENT	
LENGTH, in.:	2.910	2.916	LENGTH, cm:	7.391	7.407	WET WT SPLE+TARE	861.32	WET WT SPLE+TARE	871.14
DIAMETER, in.:	2.883	2.896	DIAMETER, cm	7.323	7.356	DRY WT SPLE+TARE	716.40	DRY WT SPLE+TARE	716.40
WET WT., gms.:	580.73	590.84				TARE WEIGHT	280.59	TARE WEIGHT	280.59
AREA, sq.in.:	6.528	6.587	AREA, sq cm:	42.116	42.497	**% MOISTURE**	33.3	% MOISTURE	35.5

B VALUE (before Permeation): 96% Cell / Back Pressure, psi: 53 / 50 **Percent Wet of Optimum: 4.0**

HEAD (PSI)	DATE (YR,MO,DY)	TIME (HR,MN,SC)	TEMP °C		ELAPSED MINUTES	BOTTOM BURETTE	TOP BURETTE	Q (CC)	K CM/SEC		HYDRAULIC GRADIENT	HYDRAULIC HEAD	HEAD LOSS,%	k (in/sec)
0.0	07-May-19	05:29 PM	22.6		0	3.07	22.84				2.67	19.77		
0.0	08-May-19	08:23 AM	22.9		894	3.24	22.90	0.17	9.5E-09		2.66	19.66	0.56	3.7E-09
2.0	08-May-19	09:51 AM	19.5	*	0	4.63	22.81				21.48	158.78		
2.0	08-May-19	05:04 PM	22.6	*	433	4.87	22.55	0.24	1.1E-08	*	21.41	158.28	0.31	4.4E-09
2.0	09-May-19	08:22 AM	23.1	*	0	5.39	22.13				21.29	157.34		
2.0	09-May-19	04:54 PM	23.3	*	512	5.66	21.87	0.27	1.0E-08	*	21.22	156.81	0.34	4.0E-09
2.0	10-May-19	08:15 AM	21.4	*	921	6.23	21.46	0.57	1.0E-08	*	21.08	155.83	0.62	4.1E-09
2.0	10-May-19	04:05 PM	21.1	*	470	6.50	21.25	0.27	1.0E-08	*	21.02	155.35	0.31	3.9E-09

Average Temp. = 21.8 *

AVERAGE K = 1.0E-08 *
Corrected K for 20°C = 9.9E-09

AVERAGE K = 4.1E-09
Corrected K for 20°C = 3.9E-09

** Measurements at end of test