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-0001872
Owner Name:	Teck American Incorporated
Address:	P.O. Box 3087, Spokane, WA, 99220
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Magmont Operation
Facility Address:	Magmont Mine Road, Bixby, MO 65439
Legal Description:	SE ¼, NW ¼ Sec. 18, T34N, R1W, Iron County
UTM Coordinates:	X = 668256, Y= 4167580
Receiving Stream:	Left Fork Neals Creek (C)
First Classified Stream and ID:	100K Extent Remaining Stream as Left Fork Neals Creek (C) WBID# 3960
USGS Basin & Sub-watershed No.:	Strother Creek; 11010007-0301

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

FACILITY DESCRIPTION

OUTFALL #01A: Former metallic mineral mine, groundwater seepage from dam toe drain and industrially exposed stormwater; SIC # 1031; NAICS # 212299. This facility does not require a certified wastewater operator; domestic wastewater is not generated at this site. Outfall moved from after confluence of Neals Creek to the confluence of the settling pond spillway and Left Fork Neals Creek stream channel. Discharge in Clearwater Lake watershed (L2) WBID #7326.
Design Flow: 6.2 MGD
Average Flow: 1.4 MGD

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

October 1, 2020
Effective Date

Edward B. Galbraith, Director, Division of Environmental Quality

June 30, 2025
Expiration Date

Chris Wieberg, Director, Water Protection Program

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

OUTFALL #01A
main outfall

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 **October 1, 2023**. These interim effluent limitations are effective beginning **October 1, 2020** and remain in effect through **September 30, 2023** or as soon as possible. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	QUARTERLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: Q						
PHYSICAL						
Flow	MGD	*		*	once/quarter ◊	24 hr. total
CONVENTIONAL						
pH †	SU	6.5 to 9.0		6.5 to 9.0	once/quarter ◊	grab
Total Suspended Solids	mg/L	30		20	once/quarter ◊	grab
METALS						
Lead, Total Recoverable	µg/L	*		*	once/quarter ◊	grab
Zinc, Total Recoverable	µg/L	*		*	once/quarter ◊	grab
OTHER						
WET Test, Acute	TUa	*		-	once/quarter ◊	grab

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

OUTFALL #01A
main outfall

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 **October 1, 2023** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	QUARTERLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
LIMIT SET: Q						
PHYSICAL						
Flow	MGD	*		*	once/quarter ◊	24 hr. total
CONVENTIONAL						
pH †	SU	6.5 to 9.0		6.5 to 9.0	once/quarter ◊	grab
Total Suspended Solids	mg/L	30		20	once/quarter ◊	grab
METALS						
Lead, Total Recoverable	µg/L	13.9		5.5	once/quarter ◊	grab
Zinc, Total Recoverable	µg/L	214		71.0	once/quarter ◊	grab
OTHER						
WET Test, Acute	TUa	1.0		-	once/quarter ◊	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2024.
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

* Monitoring and reporting requirement only

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

◊ Quarterly sampling

MINIMUM QUARTERLY SAMPLING REQUIREMENTS			
QUARTER	MONTHS	QUARTERLY EFFLUENT PARAMETERS	REPORT IS DUE
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

B. SCHEDULE OF COMPLIANCE

Schedules of compliance are allowed per 40 CFR 122.47 and 10 CSR 20-7.031(11). 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 October 1, 2021.

3. Within 3 years of the effective date of this permit, the permittee shall attain compliance with the final effluent limits at outfall #01A, for total recoverable lead and total recoverable zinc.

4. This facility must submit all reports via the electronic reporting system.

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:
   (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 laboratory shall not chemically dechlorinate the sample.
   (e) The Allowable Effluent Concentration (AEC) is 100%; the dilution series is: 6.25%, 12.5%, 25%, 50%, and 100%.
   (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.

D. SPECIAL CONDITIONS (CONTINUED)

(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.

(i) TIE/TRE Trigger: The following shall apply upon the exceedance of the TU_a limit in three accelerated follow-up 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. 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.

3. Electronic Discharge Monitoring Report (eDMR) Submission System.

(a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. Standard Conditions Part I, Section B, #7 indicates the eDMR system is currently the only Department approved reporting method for this permit.

(b) Programmatic Reporting Requirements. All reports must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data. After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date

(1) Schedule of Compliance Progress Reports;
(2) Whole Effluent Toxicity (WET) Reports; and
(3) Any additional report required by the permit excluding bypass reporting.

(c) The following shall be submitted electronically after such a system has been made available by the Department:

(1) General Permit Applications/Notices of Intent to discharge (NOIs);
(2) Notices of Termination (NOTs);
(3) No Exposure Certifications (NOEs);
(4) Low Erosivity Waivers, and Other Waivers from Stormwater Controls (LEWs); and
(5) Bypass reporting.

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

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

D. SPECIAL CONDITIONS (CONTINUED)

4. Stormwater Pollution Prevention Plan (SWPPP).
The facility's SIC code or description is found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2) and hence shall implement a Stormwater Pollution Prevention Plan (SWPPP) which must be prepared and implemented upon permit effective date. The SWPPP must be kept with personnel conducting the quarterly inspections and in the Teck American Incorporated offices in Spokane, WA; and should not be sent to the Department unless specifically requested. The SWPPP must be reviewed and updated annually or if site conditions affecting stormwater change. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in: *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002) published by the EPA in 2015 https://www.epa.gov/sites/production/files/2015-11/documents/swppp_guide_industrial_2015.pdf The purpose of the SWPPP and the Best Management Practices (BMPs) listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective at preventing pollution [644.016(17)] to waters of the state. Corrective action describes the steps the facility took to eliminate the deficiency.
The SWPPP must include:
   (a) A listing of specific contaminants and their control measures (or BMPs) and a narrative explaining how BMPs are implemented to control and minimize the amount of contaminants potentially entering stormwater.
   (b) A map with all outfalls and structural BMPs marked.
   (c) A schedule for at least once per quarter 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.
      (1) Structural deficiencies that have potential to create an exceedance of discharge criteria must be reported as an uploaded attachment through the eDMR system with the DMRs. The initial report shall consist of the deficiency noted, the proposed remedies, the interim or temporary remedies (including proposed timing of the placement of the interim measures), and an estimate of the timeframe needed to wholly complete the repairs or construction. If required by the Department, the permittee shall work with the regional office to determine the best course of action. The permittee should consider temporary structures to control stormwater runoff. The facility shall correct the structural deficiency as soon as reasonably achievable.
      (2) All actions taken to correct the deficiencies shall be included with the written report, including photographs, and kept with the SWPPP. Additionally, corrective action of major structural deficiencies shall be reported as an uploaded attachment through the eDMR system with the DMRs.
      (3) BMP failure causing discharge through an unregistered outfall is considered an illicit discharge and must be reported in accordance with Standard Conditions Part I.
      (4) Inspection reports must be kept with the SWPPP and maintained for a period of five (5) years. These must be made available to Department personnel upon request. Electronic versions of the documents and photographs are acceptable.
   (d) A provision for designating an individual to be responsible for environmental matters and a provision for providing training to all personnel involved in housekeeping, material handling (including but not limited to loading and unloading), storage, and staging of all operational, maintenance, storage, and cleaning areas. Proof of training shall be submitted upon request by the Department.

5. Site-wide minimum Best Management Practices (BMPs). At a minimum, the permittee shall adhere to the following:
   (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, warehouse activities, and other areas, and thereby prevent the contamination of stormwater from these substances.
   (b) Ensure adequate provisions are provided to prevent, and to protect embankments from erosion.
   (c) Provide collection facilities and arrange for proper disposal of waste products if generated, including but not limited to petroleum waste products, and solvents.
   (d) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so these materials are not exposed to stormwater or provide other prescribed BMPs such as plastic lids and/or portable spill pans to prevent the commingling of stormwater with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater. Spill records should be retained on-site.
   (e) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
   (f) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property.

D. SPECIAL CONDITIONS (CONTINUED)

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

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

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

9. This permit does not apply to fertilizer products receiving a current exemption under the Missouri Clean Water Law and regulations in 10 CSR 20-6.015(3)(B)8., and are land applied in accordance with the exemption.

10. Changes in Discharges of Toxic Pollutant.
    In addition to the reporting requirements under 40 CFR 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 40 CFR 122.21(g)(7).
        (4) The level established by the Director in accordance with 40 CFR 122.44(f).

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

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

13. This permit does not cover land disturbance activities.

D. SPECIAL CONDITIONS (CONTINUED)

14. This permit does not authorize the placement of fill materials in flood plains, placement of solid materials into any waterway, the obstruction of stream flow, or changing the channel of a defined drainage course. The facility must contact the U.S. Army Corps of Engineers (Corps) to determine if a CWA §404 Department of Army permit or §401 water quality certification is required for the project.

15. Renewal Application Requirements.
    (a) This facility shall submit an appropriate and complete application to the Department no less than 180 days from the expiration date listed on page 1 of the permit.
    (b) Application materials shall include complete Form A, and Form C. If the form names have changed, then the facility should ensure they are submitting the correct forms as required by regulation.
    (c) The facility may use the electronic submission system to submit the application to the Program, if available.

E. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to Sections 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days per 10 CSR 20-6.020(6). Any appeal must be directed to:

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

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0001872
MAGMONT OPERATION

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

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

PART I. FACILITY INFORMATION

Facility Type: Industrial, Major, >1 MGD
SIC Code(s): 1031
NAICS Code(s): 212299
Application Date: 01/08/2020
Expiration Date: 06/30/2020
Last Inspection: 03/27/2013

FACILITY DESCRIPTION:
Historical mineral mine. Discharges include dam toe drain (mine groundwater seepage through the waste mass) and stormwater (intermittently). Groundwater discharges from the dam toe drain are required to maintain stability of the dam. This facility's discharge is continuous due to the toe drain and there is a settling basin called Clearwater Pond.

Outfall #001 was located after the confluence of Neals Creek and Left Fork Neals Creek. However, this location is not representative of the facility's discharges but instead incorporated another watershed which is not representative of the actual discharges from the facility; outfall #001 was moved and this change reflects a change in outfall number, outfall #01A.

A presumptive beneficial use analysis was completed by the Watershed Protection Section December 11, 2019; this analysis showed Clearwater Pond, a constructed treatment basin meets the definition of a treatment device per 10 CSR 20-7.031(2)(D)3.A, and is not required to support beneficial uses; even though Left Fork Neals Creek remains a water of the state and appears on the 100K extent remaining streams list. The presumed use document can be viewed at: https://dnr.mo.gov/env/wpp/documents/magmont-operation-removal-rationale_000.pdf Presumptive beneficial uses were removed for this segment of classified stream from the confluence of its tributary at Site 7 to the Clearwater Pond dam at Site 18 where the wastewater flows re-enter into the stream with beneficial presumptive uses. See image below.

The charter number for the continuing authority for this facility is F00895826; this number was verified by the permit writer to be associated with the facility and precisely matches the continuing authority reported by the facility.

In accordance with 40 CFR 122.21(f)(6), the permittee reported other permits currently held by this facility: metallic minerals waste management act (MM-006), and maintains a registered dam onsite (R-033).

PERMITTED FEATURES TABLE:

OUTFALL	AVERAGE FLOW	DESIGN FLOW	TREATMENT LEVEL	EFFLUENT TYPE
#01A	1.4 MGD	6.2 MGD	meanders, settling	dam toe drainage (constant flow), industrial stormwater (intermittent flow)

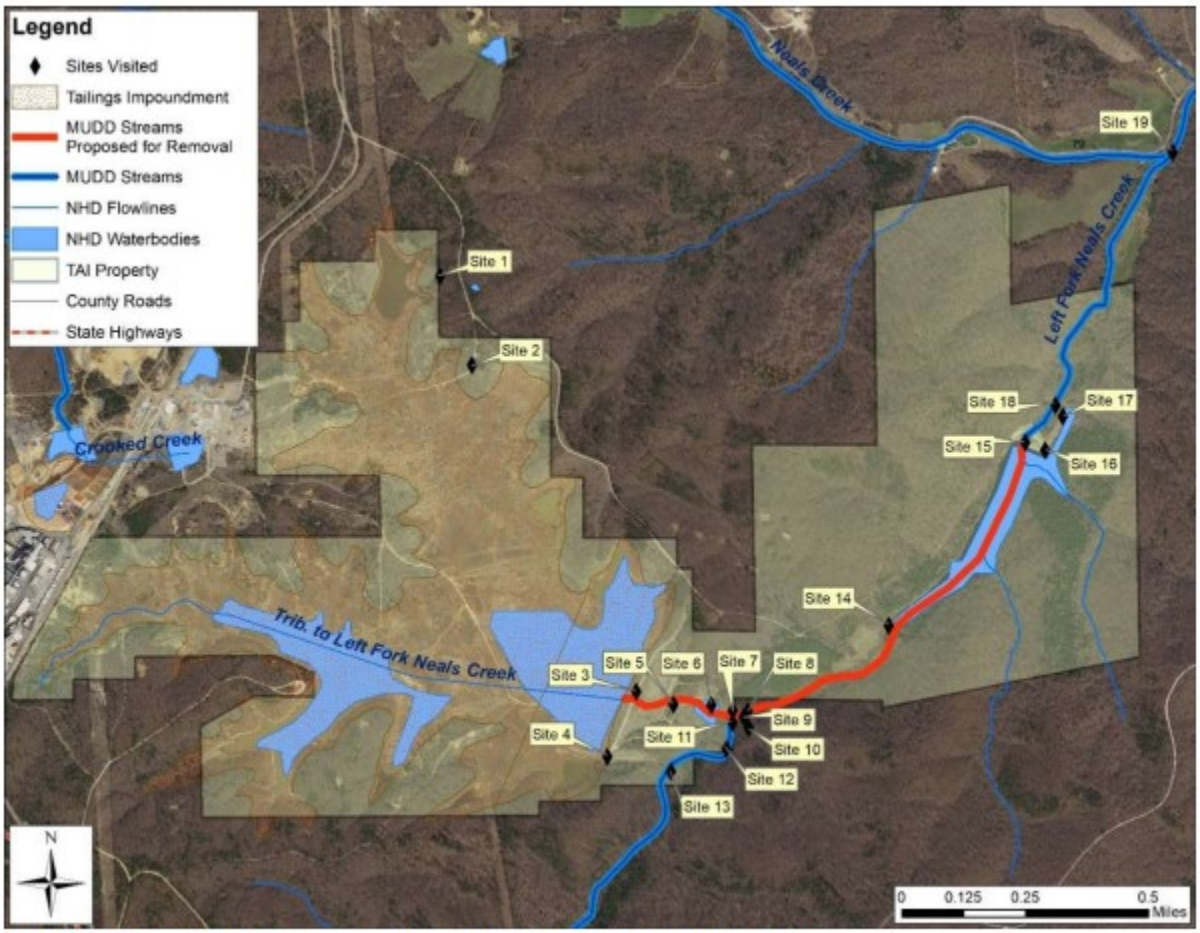
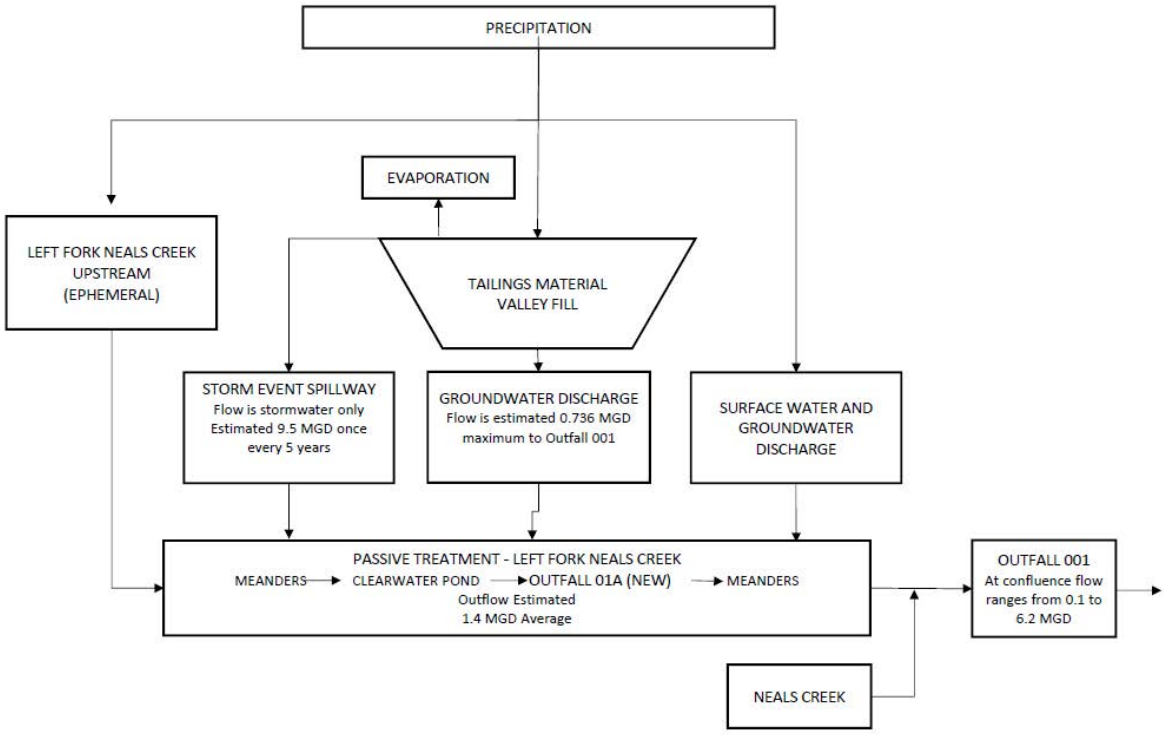


Fig. 2. Magmont Tailings Impoundment and TAI Property.
**Error in property boundary shapefile. TAI property actually extends further south to fully contain the portion of Left Fork Neals Creek proposed for removal as a waste treatment system.*

WATER BALANCE DIAGRAM:



FACILITY PERFORMANCE HISTORY & COMMENTS:
The electronic discharge monitoring reports were reviewed for the last five years. Two exceedances of zinc were noted and the facility caused toxicity in the receiving stream (WET test). TAI believes there was one event leading to both exceedances of zinc, the second result was collected during accelerated monitoring associated with the first event. Both toxicity and zinc exceedances at historic outfall #001 have since been rectified.

PART II. RECEIVING WATERBODY INFORMATION

RECEIVING WATERBODY TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES	DISTANCE TO SEGMENT	12-DIGIT HUC
#01A	100K Extent-Remaining Stream Left Fork Neals Creek	C	3960	GEN, HHP, IRR, LWW, SCR, WBC-B, WWH (ALP)	0.0 mi	Strother Creek; 11010007-0301

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 100K Extant-Remaining Streams or newer; data can be found as an ArcGIS shapefile on MSDIS at ftp://msdis.missouri.edu/pub/Inland_Water_Resources/MO_2014_WQS_Stream_Classifications_and_Use_shp.zip; New C streams described on the dataset per 10 CSR 20-7.031(2)(A)3. as 100K Extent Remaining Streams.

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

EXISTING WATER QUALITY:
The receiving waterbody has no relevant water quality data available.

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

TOTAL MAXIMUM DAILY LOAD (TMDL):
A TMDL is a calculation of the maximum amount of a given pollutant a water body can absorb before its water quality is affected; hence, the purpose of a TMDL is to determine the pollutant loading a specific waterbody can assimilate without exceeding water quality standards. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan or TMDL may be developed. The TMDL shall include the WLA calculation. http://dnr.mo.gov/env/wpp/tmdl/
✓ Not applicable; this facility does not discharge to a waterbody/watershed with a TMDL.

UPSTREAM OR DOWNSTREAM IMPAIRMENTS:
The permit writer has reviewed upstream and downstream stream segments of this facility for impairments.
✓ The permit writer has noted no upstream or downstream impairments near this facility.

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

LAKE NUMERIC NUTRIENT CRITERIA:
Water quality standards per 10 CSR 20-7.031(5)(N) describe nutrient criteria requirements assigned to lakes (which include reservoirs) in Missouri, equal to or greater than 10 acres during normal pool conditions. The Department's Nutrient Criteria Implementation Plan (NCIP) may be reviewed at: https://dnr.mo.gov/env/wpp/rules/documents/nutrient-implementation-plan-final-072618.pdf Discharges of wastewater in to lakes or lake watersheds designated as L1 (drinking water use) are prohibited per 10 CSR 20-7.015(3)(C).
✓ This facility discharges in a lake watershed (Clearwater Lake) where numeric nutrient criteria are applicable. The lake within this watershed was identified as impaired due to nutrient loading therefore the Department conducted watershed modeling, although not officially completed, the Department found no point sources causing or contributing to the impairment. The permit writer therefore concluded this facility is not a contributor to the impairment. Consequently, nutrient effluent limitations are not established at this time based on the modeling results.

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

MIXING CONSIDERATIONS:
For all outfalls, mixing zone and zone of initial dilution are not allowed per 10 CSR 20-7.031(5)(A)4.B.(I)(a) and (b), as the base stream flow does not provide dilution to the effluent; the 7Q10 of left fork Neals Creek is less than 0.1 cfs.

PART III. RATIONALE AND DERIVATION OF PERMIT CONDITIONS

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

ANTIBACKSLIDING:
Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(l)] require a reissued permit to be as stringent as the previous permit with some exceptions. Backsliding (a less stringent permit limitation) is only allowed under certain conditions.
✓ Limitations in this operating permit for the reissuance conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
  ✓ Material and substantial alterations or additions to the permitted facility occurred after permit issuance justify the application of a less stringent effluent limitation.
    - The facility's outfall was previously placed within a confluence of a stream downstream of the facility; however, the facility's discharge enters waters of the state upstream, at new outfall #01A. The facility has no data for the new location therefore a schedule of compliance can be granted to the facility to determine how they will meet the new limits.
    - Hardness data was supplied by the facility to calculate limits.
  ✓ The Department determined technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
    - The previous permit special conditions contained a specific set of prohibitions related to general criteria (GC) found in 10 CSR 20-7.031(4); however, there was no determination as to whether the discharges have reasonable potential to cause or contribute to excursion of those general water quality criteria in the previous permit. This permit assesses each general criteria as listed in the previous permit's special conditions. Federal regulations 40 CFR 122.44(d)(1)(iii) requires instances where reasonable potential (RP) to cause or contribute to an exceedance of a water quality standard exists, a numeric limitation must be included in the permit. Rather than conducting the appropriate RP determination, the previous permit simply placed the prohibitions in the permit. These conditions were removed from the permit. Appropriate reasonable potential determinations were conducted for each general criterion listed in 10 CSR 20-7.031(4)(A) through (I) and effluent limitations were placed in the permit for those general criteria where it was determined the discharge had reasonable potential to cause or contribute to excursions of the general criteria. Specific

effluent limitations were not included for those general criteria where it was determined the discharges will not cause or contribute to excursions of general criteria. Removal of the prohibitions does not reduce the protections of the permit or allow for impairment of the receiving stream. The permit maintains sufficient effluent limitations, monitoring requirements and best management practices to protect water quality while maintaining permit conditions applicable to permittee disclosures and in accordance with 10 CSR 20-7.031(4) where no water contaminant by itself or in combination with other substances shall prevent the water of the state from meeting the following conditions:

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates putrescent wastewater would be discharged from the facility.
- For all outfalls, there is no RP for unsightly or harmful bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates unsightly or harmful bottom deposits would be discharged from the facility.

(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 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 indicates scum and floating debris will be present in sufficient amounts to impair beneficial uses.

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
- For all outfalls, there is no RP for unsightly color or turbidity in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates unsightly color or turbidity will be present in sufficient amounts to impair beneficial uses.
- For all outfalls, there is no RP for offensive odor in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the permittee indicates offensive odor will be present in sufficient amounts to impair beneficial uses.

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
- This facility has numeric effluent limitations for WET testing; specific toxic pollutants are discussed below in Derivation and Discussion of Limits, and where appropriate, numeric effluent limitations added.

(E) Waters shall maintain a level of water quality at their confluences to downstream waters that provides for the attainment and maintenance of the water quality standards of those downstream waters, including waters of another state.
- This criteria was not assessed for antibacksliding as this is a new requirement, approved by the EPA on July 30, 2019.

(F) There shall be no significant human health hazard from incidental contact with the water.
- This criterion is very similar to (D) above. See Part IV, Effluent Limits Derivation below.

(G) There shall be no acute toxicity to livestock or wildlife watering.
- This criterion is very similar to (D) above. See Part IV, Effluent Limits Derivation below.

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

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

ANTIDEGRADATION REVIEW:

Process water discharges with new, altered, or expanding flows, the Department is to document, by means of antidegradation review, if the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for

antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the Department prior to establishing, altering, or expanding discharges. See http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm

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

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

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

BEST MANAGEMENT PRACTICES:

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

COST ANALYSIS FOR COMPLIANCE (CAFCOM):

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

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

CHANGES IN DISCHARGES OF TOXIC POLLUTANT:

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

COMPLIANCE AND ENFORCEMENT:

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

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

DOMESTIC WASTEWATER, SLUDGE, AND BIOSOLIDS:

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

✓ Not applicable; there are no domestic sources at this closed facility.

Sewage sludge is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

Biosolids are solid materials resulting from domestic wastewater treatment meeting federal and state criteria for productive use (i.e. fertilizer) and after having pathogens removed.
Additional information: http://extension.missouri.edu/main/DisplayCategory.aspx?C=74 (WQ422 through WQ449).
✓ Not applicable, see above.

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

EFFLUENT LIMITATION GUIDELINE:
Effluent Limitation Guidelines, or ELGs, are found at 40 CFR 400-499. These are limitations established by the EPA based on the SIC code and the type of work a facility is conducting. Most ELGs are for process wastewater and some address stormwater. All are technology based limitations which must be met by the applicable facility at all times.
✓ Not applicable; this facility was historically subject to 40 CFR 440 J, however, this site is closed and no longer generating process wastewater.

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

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is not transferable.

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

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

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

GROUNDWATER MONITORING:
Groundwater is a water of the state according to RSMo 644.016(27), is subject to regulations at 10 CSR 20-7.015(7) and 10 CSR 20-7.031(6), and must be protected accordingly.
✓ This facility is not required to monitor groundwater for the water protection program.

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

✓ Not applicable; this permit does not authorize operation of a surficial land application system to disperse wastewater or sludge.
✓ This permit does not authorize land disposal or the application of hazardous waste.

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

✓ Not applicable; this permit does not provide coverage for land disturbance activities. The facility may obtain a separate land disturbance permit (MORA) online at https://dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm; MORA permits do not cover disturbance of contaminated soils, however, site specific permits such as this one can be modified to include appropriate controls for land disturbance of contaminated soils by adding site-specific BMP requirements and additional outfalls.

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

✓ Not applicable; this permittee cannot withdraw water from the state in excess of 70 gpm/0.1 MGD.

NUTRIENT MONITORING:
Nutrient monitoring is required for facilities characteristically or expected to discharge nutrients (nitrogenous compounds and/or phosphorus) when the design flow is equal to or greater than 0.1 MGD per 10 CSR 20-7.015(9)(D)8.

✓ The total design flow for this facility is 6.2 MGD, similar facilities have nutrient monitoring because nitrogenous compounds are used for blasting ore. However, this facility is closed and nutrients being discharged are expected to be coming from entrained stormwater, not from the historic mine activities and toe dam drainage.

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

✓ Not applicable; the permittee has not disclosed the use of any oil water separators they wish to include under the NPDES permit at this facility and therefore oil water separator tanks are not authorized by this permit.

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

✓ Not applicable, this facility does not discharge wastewater to a POTW.

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

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

Parameter	Units	CMC Acut	CCC Chronic	Listing	Daily Ma	Monthly Averag	n#	CV	n Ma	MF	RWC Acute	RWC Chroni	RP
Lead, TR	µg/L	194.71	7.59	AQL	13.85	5.52	20	0.987	4.6	3.46	15.91	15.91	Yes
Zinc, TR	µg/L	214.17	212.44	AQL	214.17	71.01	20	1.809	290	6.1285467	1777.2785	1777.2785	Yes

Units are (µg/L) unless otherwise noted.
n/a Not Applicable
n number of samples; if the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent.

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

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

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

Sampling frequency for stormwater-only outfalls is typically quarterly even though BMP inspection should occur more frequently. 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, volatile organic compounds, and others.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, effluent limits, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. SOCs are allowed under 40 CFR 122.47 and 10 CSR 20-7.031(11) providing certain conditions are met.
A SOC is not allowed:

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

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

- ✓ Applicable; the time given for effluent limitations of this permit listed under Interim Effluent Limitations and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)]. The facility has been given a schedule of compliance to meet final effluent limits for lead, zinc, and whole effluent toxicity. See permit Sections A and B for compliance dates.

SPILLS, OVERFLOWS, AND OTHER UNAUTHORIZED DISCHARGE REPORTING:
Per 260.505 RSMo, any emergency involving a hazardous substance must be reported to the Department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The Department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill

results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the noncompliance reporting requirement found in Standard Conditions Part I. http://dnr.mo.gov/env/esp/spillbill.htm

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

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

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

STORMWATER PERMITTING: LIMITATIONS AND BENCHMARKS:
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*, (EPA 833-B-09-002) published by the EPA in 2015 https://www.epa.gov/sites/production/files/2015-11/documents/swppp_guide_industrial_2015.pdf, BMPs are measures or practices used to reduce the amount of pollution entering waters of the state from a permitted facility. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to 1) identify sources of pollution or contamination, and 2) select and carry out actions which prevent or control the pollution of storm water discharges. Additional information can be found in *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-006; September 1992).

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

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

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

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

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

✓ Applicable; a SWPPP was required during the last permit term and shall be implemented and revised annually for this facility.

SUFFICIENTLY SENSITIVE ANALYTICAL METHODS:

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

UNDERGROUND INJECTION CONTROL (UIC):

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

✓ Not applicable; the permittee has not submitted materials indicating the facility will be performing UIC 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 specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.
✓ Not applicable; this permit is not drafted under premise of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010; definitions], the WLA is the amount of pollutant each discharger is allowed to discharge into the receiving stream without endangering water quality. Two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs) are reviewed. If one limit does not provide adequate protection for the receiving water, then the other must be used per 10 CSR 20-7.015(9)(A). Total Maximum Daily Loads, if required for this facility, were also reviewed.
✓ Applicable; wasteload allocations for toxic parameters were calculated using water quality criteria or water quality model results and by applying the dilution equation below; WLAs are calculated using the *Technical Support Document For Water Quality-Based Toxics Control* or TSD EPA/505/2-90-001; 3/1991.

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

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

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

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

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

WATER QUALITY STANDARD REVISION:
In accordance with section 644.058, RSMo, the Department is required to utilize an evaluation of the environmental and economic impacts of modifications to water quality standards of twenty-five percent or more when making individual site-specific permit decisions.
✓ This operating permit contains a permit requirement for hardness-dependent metals for which water quality criteria has been modified by twenty-five percent or more since the issuance of the previous permit. The hardness calculation changed from the 25^{th} percentile to the 50^{th} percentile, but the Ecoregion data also changed. The change of this requirement was necessary to ensure the criteria implemented in permits are reflective of the most current science available, while protecting the water quality of the receiving streams, and also without placing needless and overly burdensome requirements on regulated entities.

PART IV. EFFLUENT LIMITS DETERMINATIONS

OUTFALL #01A – MAIN FACILITY OUTFALL

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	QUARTERLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL							
FLOW	MGD	*	*	SAME	ONCE/QUARTER	QUARTERLY	24 HR. TOT
CONVENTIONAL							
pH †	SU	6.5 TO 9.0	6.5 TO 9.0	SAME	ONCE/QUARTER	QUARTERLY	GRAB
TOTAL SUSPENDED SOLIDS (TSS)	mg/L	30	20	SAME	ONCE/QUARTER	QUARTERLY	GRAB
METALS							
LEAD, TR	µg/L	*	*	INTERIM	ONCE/QUARTER	QUARTERLY	GRAB
LEAD, TR	µg/L	13.9	5.5	FINAL	ONCE/QUARTER	QUARTERLY	GRAB
ZINC, TR	µg/L	*	*	INTERIM	ONCE/QUARTER	QUARTERLY	GRAB
ZINC, TR	µg/L	214	71.0	FINAL	ONCE/QUARTER	QUARTERLY	GRAB
OTHER							
WET TEST - ACUTE	TUa	*	-	INTERIM	ONCE/QUARTER	QUARTERLY	GRAB
WET TEST - ACUTE	TUa	1.0	-	FINAL	ONCE/QUARTER	QUARTERLY	GRAB

*	monitoring and reporting requirement only
†	report the minimum and maximum pH values; pH is not to be averaged
new	parameter not established in previous state operating permit
interim	parameter requirements prior to end of SOC
final	parameter requirements at end of SOC
TR	total recoverable

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to ensure 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), quarterly monitoring continued from previous permit.

CONVENTIONAL:

pH

6.5 to 9.0 SU – instantaneous grab sample. Water quality limits [10 CSR 20-7.031(5)(E)] are applicable to this outfall. pH is a fundamental water quality indicator. Additionally, metals leachability and ammonia availability in wastewater is dependent on pH. Limitations in this permit will protect against aquatic organism toxicity, downstream water quality issues, human health hazard contact, and negative physical changes in accordance with the general criteria at 10 CSR 20-7.031(4) and the Clean Water Act's (CWA) goal of 100% fishable and swimmable rivers and streams.

Total Suspended Solids (TSS)

Technology limits of 30 mg/L daily maximum and 20 mg/L monthly average continued from previous permit. This limit is retained to adhere to antibacksliding regulations. The facility utilizes a settling basin called Clearwater Pond. This pond is expected to provide sufficient settling to continue to meet these limits. Technology limits can not be afforded a schedule of compliance per 40 CFR 125.3.

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). "Aquatic Life Protection" in 10 CSR 20-7.031

Tables A1 and A2, as well as general criteria protections in 10 CSR 20-7.031(4) apply to this discharge. The hardness value used for hardness-dependent metals calculations was based on the ecoregion's 50th percentile, also known as the median per 10 CSR 20-7.015(1)(CC), and is reported in the calculations below. Per a memorandum dated August 6, 2019, the Director has determined permit writers should use the median of the Level III Ecoregion to calculate permit limits, or site specific data if applicable. Additional use criterion (HHP, DWS, GRW, IRR, or LWW) may also be used, as applicable, to determine the most protective effluent limit for the receiving waterbody's class and uses.

Lead, Total Recoverable

Previous permit limits were monitoring only. The facility reported between 0.1 and 4.6 µg/L for this parameter; this parameter has RP; see fact sheet Part III, REASONABLE POTENTIAL. Earlier permits limited lead at 161 µg/L daily maximum and 80.3 µg/L monthly average. The facility is not able to meet the new limits therefore an SOC is afforded; see fact sheet Part III SCHEDULE OF COMPLIANCE.

Acute AQL: e^(1.273 * ln198 – 1.460448) * (1.46203 – ln198 * 0.145712) = 134.636 µg/L	[at hardness 198]
Chronic AQL: e^(1.273 * ln198 – 4.704797) * (1.46203 – ln198 * 0.145712) = 5.25 µg/L	[at hardness 198]
TR Conversion: AQL/Translator = 134.636 / 0.691 = 194.711	[at hardness 198]
TR Conversion: AQL/Translator = 5.25 / 0.691 = 7.593	[at hardness 198]
LTAa: WLAa * LTAa multiplier = 194.711 * 0.206 = 40.177	[CV: 0.987, 99th %ile]
LTAc: WLAc * LTAc multiplier = 7.593 * 0.376 = 2.858	[CV: 0.987, 99th %ile]
use most protective LTA: 2.858	
Daily Maximum: MDL = LTA * MDL multiplier = 2.858 * 4.846 = 13.9 µg/L	[CV: 0.987, 99th %ile]
Monthly Average: AML = LTA * AML multiplier = 2.858 * 1.933 = 5.5 µg/L	[CV: 0.987, 95th %ile, n=4]

Zinc, Total Recoverable

Previous permit limits were 197 µg/L daily maximum, 80 µg/L monthly average; the facility reported between 4.2 and 290 µg/L for this parameter; this parameter has RP due to several high readings and a large variation; see fact sheet Part III, REASONABLE POTENTIAL. The facility is not able to meet the new limits therefore an SOC is afforded; see fact sheet Part III SCHEDULE OF COMPLIANCE. The previous limits were calculated based on a hardness of 200.5 mg/L; the ecoregion's hardness is 170.

Acute AQL: e^(0.8473 * ln198 + 0.884) * 0.98 = 209.463 µg/L	[at hardness 198]
Chronic AQL: e^(0.8473* ln198 + 0.884) * 0.98 = 209.463 µg/L	[at hardness 198]
TR Conversion: AQL/Translator = 209.463 / 0.978 = 214.175	[at hardness 198]
TR Conversion: AQL/Translator = 209.463 / 0.986 = 212.437	[at hardness 198]
LTAa: WLAa * LTAa multiplier = 214.175 * 0.125 = 26.841	[CV: 1.809, 99th %ile]
LTAc: WLAc * LTAc multiplier = 212.437 * 0.223 = 47.426	[CV: 1.809, 99th %ile]
use most protective LTA: 26.841	
Daily Maximum: MDL = LTA * MDL multiplier = 26.841 * 7.979 = 214.2 µg/L	[CV: 1.809, 99th %ile]
Monthly Average: AML = LTA * AML multiplier = 26.841 * 2.646 = 71 µg/L	[CV: 1.809, 95th %ile, n=4]

OTHER:

Whole Effluent Toxicity (WET) Test, Acute

A WET test is a quantifiable method to determine conclusively if 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) to quantify toxicity. WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures the provisions in 10 CSR 20-6 and Missouri's 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 ensure compliance with the CWA and related regulations of the Missouri Clean Water Commission. Missouri Clean Water Law (MCWL) RSMo §644.051.3. requires the Department to set permit conditions complying with the MCWL and CWA. RSMo §644.051.4 specifically references toxicity as an item the Department must consider in 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:

- ✓ Other; facility's discharge has shown toxicity in the past. The permit writer has determined this facility has reasonable potential to cause toxicity in the receiving stream. During the last permit term, the wastewater exhibited toxicity. The facility took steps to detect and correct the suspected pollutant load (zinc) within the discharge. Subsequent WET tests did not show toxicity. The facility cleaned out the end of the pipe which discharges groundwater from under the dam, cleaned out the area where this pipe discharges, and placed a rock apron downstream of the pipe to promote oxygenation.

WQS:	no toxics in toxic amounts [10 CSR 20-7.031(4)(J)2.B.] = 0.3 TUa	
Acute WLA:	C_e = 0.3 TUa *(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.

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 waterbodies with no mixing considerations is 100%, 50%, 25%, 12.5%, & 6.25%.

PART V. ADMINISTRATIVE REQUIREMENTS

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

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

✓ This permit will maintain synchronization by expiring in 5 years.

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

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

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

✓ The Public Notice period for this operating permit was from 7/31/2020-8/31/2020; no comments were received except for facility's indication of two minor typos in the permit; the typos were fixed.

DATE OF FACT SHEET: SEPTEMBER 2, 2020
COMPLETED BY:
PAM HACKLER, ENVIRONMENTAL SCIENTIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL UNIT
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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.

Form A

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

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

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

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

1. REASON FOR APPLICATION:

☑ a. This facility is now in operation under Missouri State Operating Permit (permit) MO – 0001872, is submitting an application for renewal, and there is no proposed increase in design wastewater flow. Annual fees will be paid when invoiced and there is no additional permit fee required for renewal.

☐ b. This facility is now in operation under permit MO – _____, is submitting an application for renewal, and there is a proposed increase in design wastewater flow. Antidegradation Review may be required. Annual fees will be paid when invoiced and there is no additional permit fee required for renewal.

☐ c. This is a facility submitting an application for a new permit (for a new facility). Antidegradation Review may be required. New permit fee is required.

☐ d. This facility is now in operation under Missouri State Operating Permit (permit) MO – _____ and is requesting a modification to the permit. Antidegradation Review may be required. Modification fee is required.

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Magmont Operation		(509) 623-4505	
ADDRESS (PHYSICAL)	**CITY**	**STATE**	**ZIP CODE**
Magmont Mine Road	Bixby	MO	65439

3. OWNER

NAME		TELEPHONE NUMBER WITH AREA CODE	
Teck American Incorporated		(509) 623-4505	
EMAIL ADDRESS			
dave.enos@teck.com			
ADDRESS (MAILING)	**CITY**	**STATE**	**ZIP CODE**
P.O. Box 3087	Spokane	WA	99220

4. CONTINUING AUTHORITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Teck American Incorporated		(509) 623-4505	
EMAIL ADDRESS			
ADDRESS (MAILING)	**CITY**	**STATE**	**ZIP CODE**
P.O. Box 3087	Spokane	WA	99220

5. OPERATOR CERTIFICATION

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

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
Ralph "David" Enos	Manager, Dormant Properties	(509) 623-4505
E-MAIL ADDRESS		
dave.enos@teck.com		

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

NAME			
Vernon and Mary Lou Asher			
ADDRESS	**CITY**	**STATE**	**ZIP CODE**
110 Henry St.	Caledonia	MO	63631

8. ADDITIONAL FACILITY INFORMATION

8.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)
For Universal Transverse Mercator (UTM), use Zone 15 North referenced to North American Datum 1983 (NAD83)

001 NE ¼ NW ¼ Sec 18 T 34N R 1W Iron _____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

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): _____

8.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.
Primary SIC 1031 Past and NAICS _____ SIC _____ and NAICS _____
SIC _____ and NAICS _____ SIC _____ and NAICS _____

9. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION

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

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

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

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

E. Have you received or applied for any permit or construction approval under the CWA or any other environmental regulatory authority? YES ☑ NO ☐
If yes, please include a list of all permits or approvals for this facility.

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

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

10. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

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

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

☑ - You have previously submitted the required documentation to participate in the eDMR system and/or you are currently using the eDMR system.

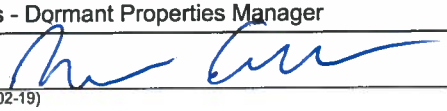
☐ - You have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.

11. FEES

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

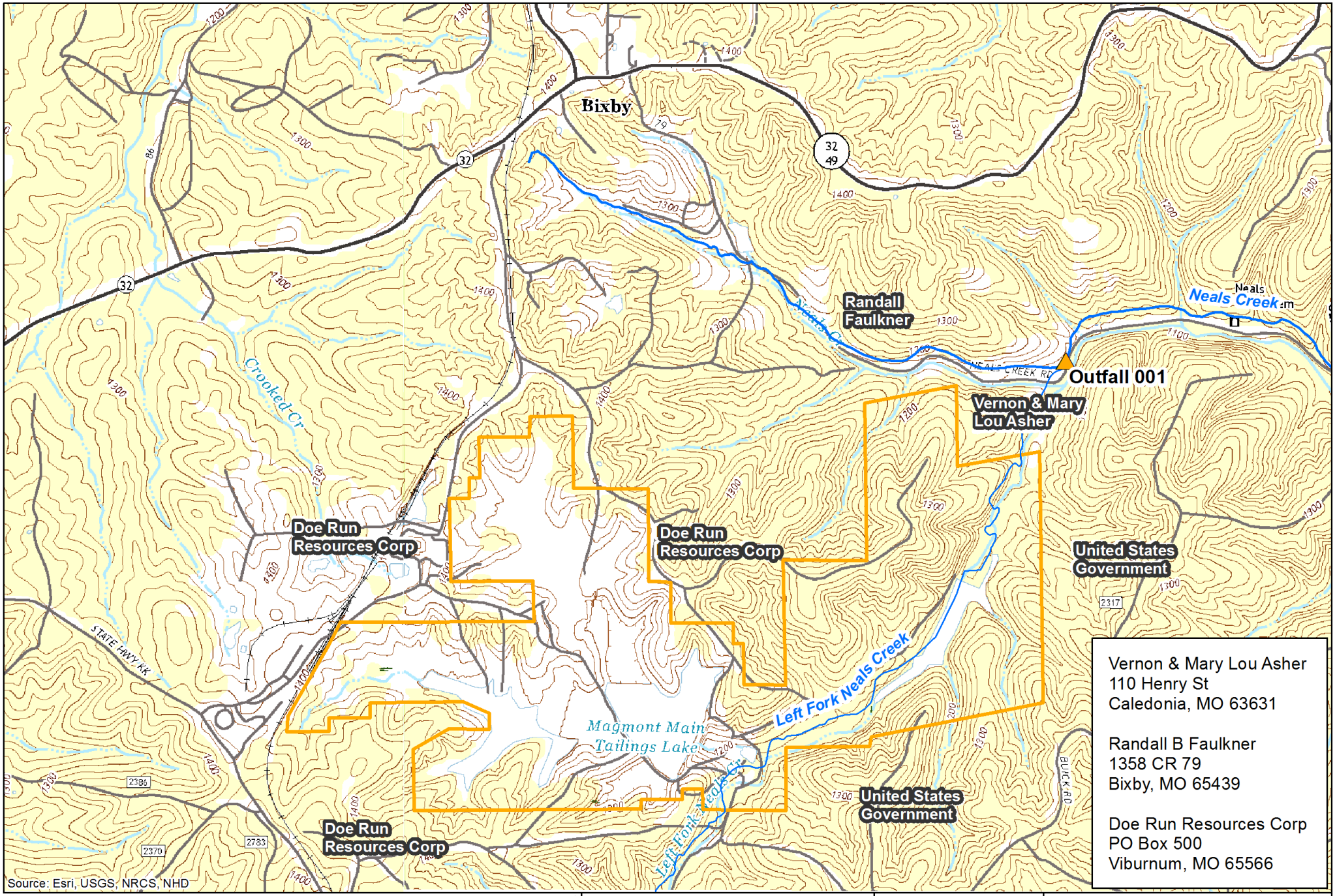
12. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Ralph Enos - Dormant Properties Manager	509-623-4505
SIGNATURE 	DATE SIGNED January 2, 2020

FORM A 9.E SUMMARY OF ENVIRONMENTAL PERMITS
TECK AMERICAN INCORPORATED MAGMONT OPERATION
NPDES OUTFALL 001, BIXBY, MISSOURI

	Permit Name	Agency	Reference Number	Effective Date	Expiration Date
1	Metallic Minerals Waste Management Act	Missouri Department of Natual Resources	MM-006	12/27/2017	N/A
2	Dam Registration	Missouri Department of Natual Resources, Dam and Reservoir Safety Council	R-033	1/25/2019	3/11/2021



Vernon & Mary Lou Asher
110 Henry St
Caledonia, MO 63631

Randall B Faulkner
1358 CR 79
Bixby, MO 65439

Doe Run Resources Corp
PO Box 500
Viburnum, MO 65566

NPDES Outfall | TAI Property Boundary

0 2,000 4,000 Feet

1 inch = 2,000 feet

N

NPDES Permit Application
Magmont Operation Property
Bixby, MO

Teck American Incorporated

GEI Consultants

Project 1903226

Form A: 9.G
Figure 1

December 2019

Form C

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

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

GENERAL INFORMATION (PLEASE SEE INSTRUCTIONS)

1.0 NAME OF FACILITY

Magmont Operation

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

MO-0001872

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

NO

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

Outfall #001 - Former Lead and Zinc Mine SIC #1031.
Storm water runoff from reclaimed former mine and reclamation maintenance/monitoring activities.

Permanent in-situ fill of lead-zinc-copper mine milling ground waste rock tailings. Tailings area is capped with soil, has established vegetation growth, and is contoured to control stormwater runoff. The site has been reclaimed in accordance with Missouri Department of Natural Resources Missouri Metallic Minerals Waste Management Act Permit MM-006.

FLOWS, TYPE, AND FREQUENCY

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

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

1. OUTFALL NO.	2. OPERATION(S) CONTRIBUTING FLOW; INCLUDE ALL PROCESSES AND SUB PROCESSES AT EACH OUTFALL	3. AVERAGE FLOW AND (MAXIMUM FLOW), INCLUDE UNITS.	4. TREATMENT DESCRIPTION	5. TREATMENT CODES FROM TABLE A
001	Stormwater runoff; groundwater discharge	1.4(6.2) MGD	Discharge to surface water	4A

Attach additional pages if necessary.

2.2 INTERMITTENT DISCHARGES

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

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

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

2.3 PRODUCTION

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

☐ Yes 40 CFR_____ Subpart(s) _____ ☑ No *(go to section 2.5)* Inactive mine in reclamation, BMPs apply.

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

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

C. If you answered "yes" to B, list the quantity representing an actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline and indicate the affected outfalls.

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

2.4 IMPROVEMENTS

A. Are you required by any federal, state, or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

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

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
			A. REQUIRED	B. PROJECTED
Metallic Minerals Permit 006	001	Maintenance of soil cover and vegetation	On-going	
Dam Safety Permit R-033	001	Maintain stability of dam	On-going	

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

2.5 SLUDGE MANAGEMENT

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

Infrequent removal of accumulated iron oxide deposits (<1 time/5 years). Materials incorporated into MM-006 permitted area under soil cover.

DATA COLLECTION AND REPORTING REQUIREMENTS FOR APPLICANTS

3.0 EFFLUENT (AND INTAKE) CHARACTERISTICS (SEE INSTRUCTIONS)

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

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

1. POLLUTANT	2. SOURCE	3. OUTFALL(S)	4. ANALYTICAL RESULTS (INCLUDE UNITS)
N/A			

3.1 Whole Effluent Toxicity Testing

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

☑ Yes (go to 3.1 B) ☐ No (go to 3.2)

3.1 B

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

See Supplemental WET Documentation (attached)

3.2 CONTRACT ANALYSIS INFORMATION

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

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

A. LAB NAME	**B. ADDRESS**	**C. TELEPHONE** *(area code and number)*	**D. POLLUTANTS ANALYZED** *(list or group)*
(see supplemental document)			

4.0 STORMWATER

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

OUTFALL NUMBER	TOTAL AREA DRAINED (PROVIDE UNITS)	TYPES OF SURFACES (VEGETATED, STONE , PAVED, ETC)	BEST MANAGEMENT PRACTICES EMPLOYED; INCLUDE STRUCTURAL BMPS AND TREATMENT DESIGN FLOW FOR BMPS DESCRIBE HOW FLOW IS MEASURED
001	~300 acres	>95% vegetated	Permanent in-situ fill of lead-zinc-copper mine milling ground waste rock
	(reclaimed)	<5% gravel roads, concrete	tailings. Tailings area is capped with soil, has established vegetation growth,
			and is contoured to control stormwater runoff. Standard construction BMPs
			used during periodic maintenance activities.

4.2 STORMWATER FLOWS
Provide the date of sampling with the flows, and how the flows were estimated.
N/A

SIGNATORY REQUIREMENTS

5.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NUMBER WITH AREA CODE
Ralph Enos - Dormant Properties Manager	509-623-4505
SIGNATURE (SEE INSTRUCTIONS)	DATE SIGNED
	January 2, 2020

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

FORM C TABLE 1 FOR 3.0 - ITEMS A AND B

EFFLUENT (AND INTAKE) CHARACTERISTICS THIS OUTFALL IS: 001 OUTFALL NO. 001

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

1. POLLUTANT	2. VALUES							3. UNITS *(specify if blank)*	
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			
A. Biochemical Oxygen Demand, 5-day (BOD_5)	<2.0	N/A					1	N/A	N/A
B. Chemical Oxygen Demand (COD)	6.7	346					1	mg/L	lb/day
C. Total Organic Carbon (TOC)	1.8	93					1	mg/L	lb/day
D. Total Suspended Solids (TSS)	11.0	569			5.26	61	56	mg/L	lb/day
E. Ammonia as N	<0.079	N/A					1	mg/L	N/A
F. Flow	VALUE 6.2		VALUE		VALUE 1.4		27	MILLIONS OF GALLONS PER DAY (MGD)	
G. Temperature *(winter)*	VALUE 71.3		VALUE		VALUE 52.7		11	°F	
H. Temperature *(summer)*	VALUE 78.4		VALUE		VALUE 68.0		16	°F	
I. pH	MINIMUM 7.2		MAXIMUM 8.76		AVERAGE 8.10		68	STANDARD UNITS (SU)	

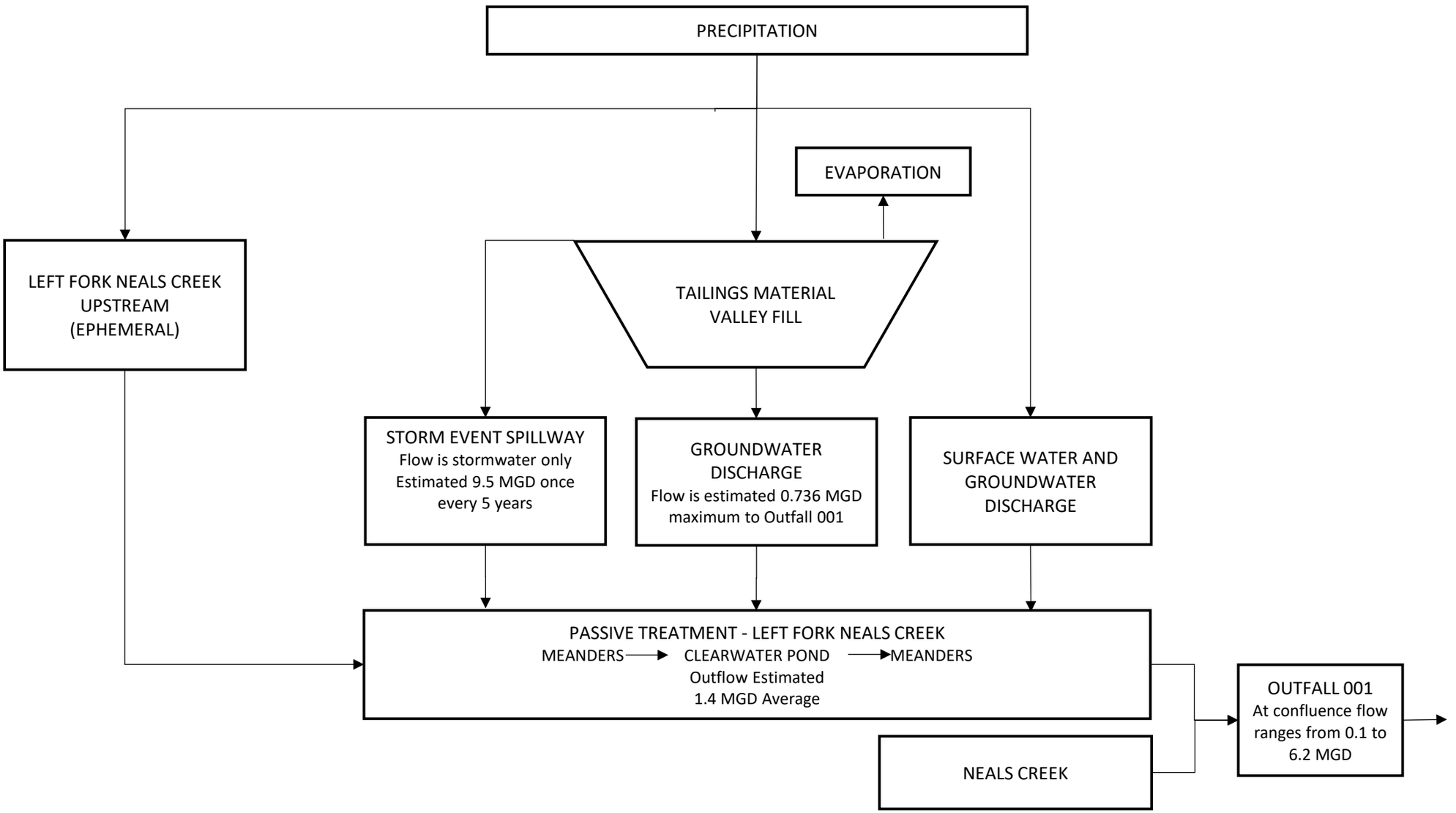
3.0 PART B – Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark Column 2A for any pollutant, you must provide the results for at least one analysis for the pollutant. Complete one table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

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUES		C. LONG TERM AVERAGE VALUES		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants											
A. Alkalinity ($CaCO_3$)	X		MINIMUM 229	11841	MINIMUM		MINIMUM		1	mg/L	lb/day
B. Bromide (24959-67-9)		X									
C. Chloride (16887-00-6)	X		2.0	103					1	mg/L	lb/day
D. Chlorine, Total Residual		X	<0.010	N/A					1	mg/L	N/A
E. Color	X		3.0	N/A					1	units	N/A
F. Conductivity	X		426	N/A					1	umhos/cm	N/A
F. Cyanide, Amenable to Chlorination		X									

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 1 – Conventional and Non-Conventional Pollutants (Continued)											
G. *E. coli*	X		464	N/A					1	MPN/100	N/A
H. Fluoride (16984-48-8)		X	<0.085	N/A					1	mg/L	N/A
I. Nitrate plus Nitrate *(as N)*	X		0.091	4.71					1	mg/L	lb/day
J. Kjeldahl, Total (as N)		X	<0.37	N/A					1	mg/L	N/A
K. Nitrogen, Total Organic *(as N)*		X	<0.50	N/A					1	mg/L	N/A
L. Oil and Grease		X	<1.3	N/A					1	mg/L	N/A
M. Phenols, Total		X	<0.016	N/A					1	mg/L	N/A
N. Phosphorus *(as P),* Total (7723-14-0)		X									
O. Sulfate *(as SO^4)* (14808-79-8)	X		23.2	1200					1	mg/L	lb/day
P. Sulfide *(as S)*		X	<0.039	N/A					1	mg/L	N/A
Q. Sulfite (as SO^3) (14265-45-3)		X									
R. Surfactants		X	<0.064	N/A					1	mg/L	N/A
S. Trihalomethanes, Total		X	<0.00032	N/A					1	mg/L	N/A
Subpart 2 – Metals											
1M. Aluminum, Total Recoverable (7429-90-5)	X		0.0098	0.51					1	mg/L	lb/day
2M. Antimony, Total Recoverable (7440-36-9)	X		0.00011	0.0057					1	mg/L	lb/day
3M. Arsenic, Total Recoverable (7440-38-2)	X		0.00033	0.0171					1	mg/L	lb/day
4M. Barium, Total Recoverable (7440-39-3)	X		0.0406	2.10					1	mg/L	lb/day
5M. Beryllium, Total Recoverable (7440-41-7)		X									
6M. Boron, Total Recoverable (7440-42-8)	X		0.0107	0.553					1	mg/L	lb/day
7M. Cadmium, Total Recoverable (7440-43-9)		X	<0.000033	N/A					1	mg/L	N/A
8M. Chromium III Total Recoverable (16065-83-1)		X	<0.01	N/A					1	mg/L	N/A
9M. Chromium VI, Dissolved (18540-29-9)		X	<0.0031	N/A					1	mg/L	N/A
10M. Cobalt, Total Recoverable (7440-48-4)	X		0.00014	0.0072					1	mg/L	lb/day

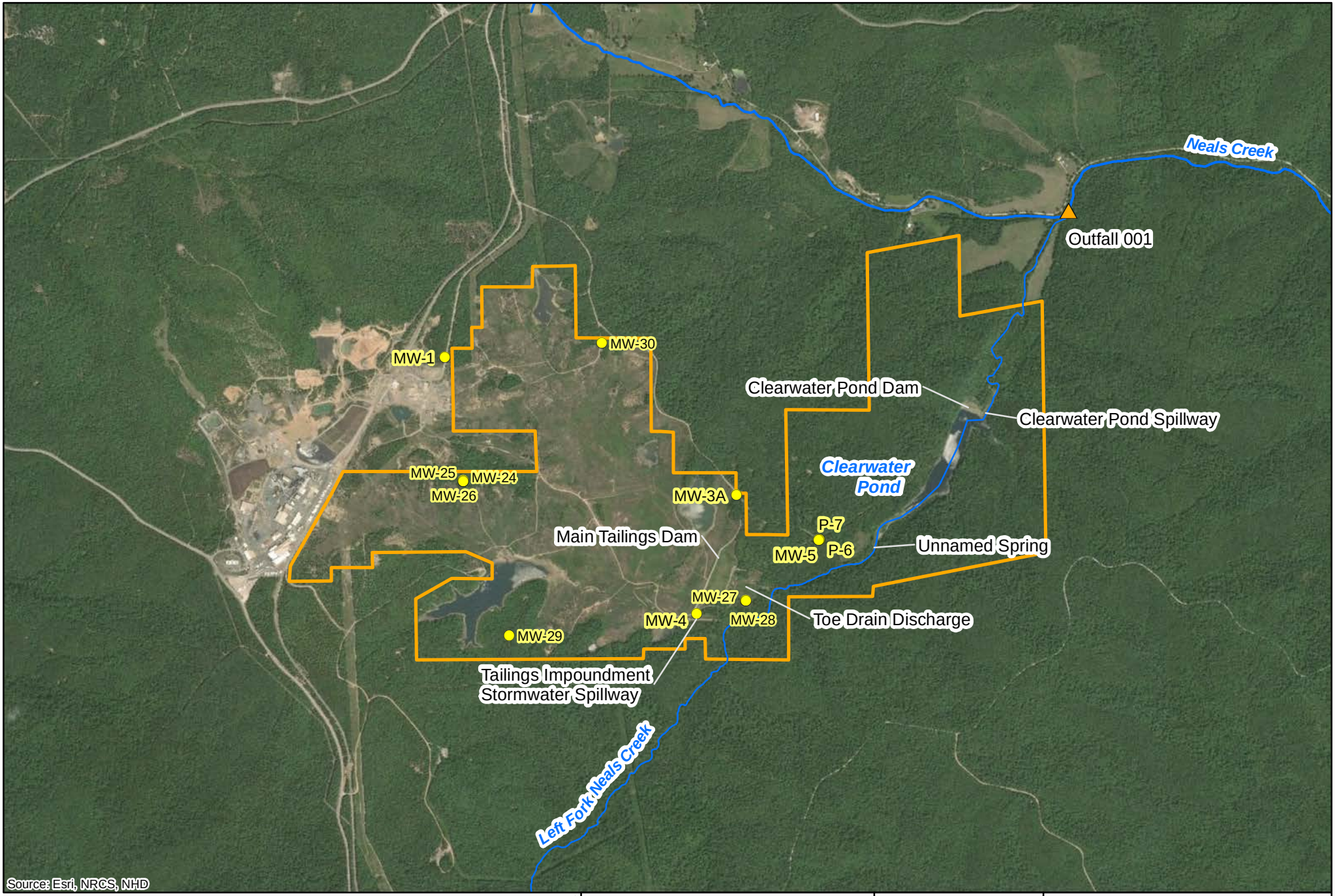
1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"		3. VALUES							4. UNITS	
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES	A. CONCEN-TRATION	B. MASS
			CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS			
Subpart 2 – Metals (Continued)											
11M. Copper, Total Recoverable (7440-50-8)	X		0.00055	0.0284					1	mg/L	lb/day
12M. Iron, Total Recoverable (7439-89-6)	X		0.0208	1.076					1	mg/L	lb/day
13M. Lead, Total Recoverable (7439-92-1)	X		0.0046	0.238			0.00011	0.001	56	mg/L	lb/day
14M. Magnesium, Total Recoverable (7439-95-4)	X		32.3	1670			23.28	272	56	mg/L	lb/day
15M. Manganese, Total Recoverable (7439-96-5)	X		0.0072	0.372					1	mg/L	lb/day
16M. Mercury, Total Recoverable (7439-97-6)		X									
17M. Methylmercury (22967926)		X	<0.0245	N/A					1	ng/L	N/A
18M. Molybdenum, Total Recoverable (7439-98-7)		X									
19M. Nickel, Total Recoverable (7440-02-0)	X		0.0026	0.134					1	mg/L	lb/day
20M. Selenium, Total Recoverable (7782-49-2)		X									
21M. Silver, Total Recoverable (7440-22-4)	X		0.00016	0.0083					1	mg/L	lb/day
22M. Thallium, Total Recoverable (7440-28-0)		X	<0.000099	N/A					1	mg/L	N/A
23M. Tin, Total Recoverable (7440-31-5)		X									
24M. Titanium, Total Recoverable (7440-32-6)		X									
25M. Zinc, Total Recoverable (7440-66-6)	X		0.29	15			0.061	0.7	56	mg/L	lb/day
Subpart 3 – Radioactivity											
1R. Alpha Total		X									
2R. Beta Total		X									
3R. Radium Total		X									
4R. Radium 226 plus 228 Total		X									

FORM C 2.0 WATER FLOW DIAGRAM
TECK AMERICAN INCORPORATED MAGMONT OPERATION
NPDES OUTFALL 001, BIXBY, MISSOURI



FORM C 3.2 CONTRACT ANALYSIS INFORMATION
TECK AMERICAN INCORPORATED MAGMONT OPERATION
NPDES OUTFALL 001, BIXBY, MISSOURI

A. Name	B. Address	C. Telephone	D. Pollutants Analyzed
AECOM (previous)	100 N. Broadway St. Louis, MO 63102	314-429-0100	pH Flow
GEI Consultants (current)	3636 S. Geyer Rd St. Louis, MO 63127	314-238-7472	pH Flow
Pace Analytical	9608 Loiret Blvd Lenexa, KS 66219	913-599-5665	Total Suspended Solids Lead, Total Recoverable Zinc, Total Recoverable Other chemistry as needed to manage Permit MO-0001872
Eurofins TestAmerica formerly CH2M Hill (previous)	1100 NE Circle Blvd Corvallis, OR 97330	541-243-0980	WET - *P. promelas, C. dubia*
TRE Environmental Strategies (previous)	100 Racquette Drive Fort Collins, CO 80524	970-416-0916	WET - *P. promelas, C. dubia*
Pacific EcoRisk (current)	2250 Cordelia Rd Fairfield, CA 94534	707-207-7760	WET - *P. promelas, C. dubia*



NPDES Outfall | Monitoring Wells | TAI Property Boundary

0 2,000 4,000 Feet

1 inch = 2,000 feet

N

NPDES Permit Application
Magmont Operation Property
Bixby, MO

Teck American Incorporated

GEI Consultants

Project 1903226

Form C: 4.1
Figure 1

December 2019

Form C

Supplemental WET Documentation

3.1 B

WET testing performed quarterly for Outfall 001 per MO-0001872. Acute *P. promelas* and *C. dubia* static toxicity tests conducted. All tests passed from 2015 to present except for one event and three associated accelerated events in 2019. A TIE (attached) was conducted on water from the first toxicity event (March 11, 2019) which suggested cationic metals (e.g. zinc) may be causing or contributing to toxicity. The primary cause of toxicity is suspected to be increased zinc loading due to abnormally high precipitation and associated high stormwater flow, possibly exasperated by increased feral pig activity along the stormwater conveyance/passive treatment flow path. In response, the facility cleaned a 100 foot section of seepage conveyance downstream of the tailings dam and implemented a program to reduce the feral pig population at the site.

FORM C 3.1 B SUMMARY OF ALL WET TEST RESULTS WITH TOXICITY
2015 through 2019
TECK AMERICAN INCORPORATED MAGMONT OPERATION
NPDES OUTFALL 001, BIXBY, MISSOURI

Laboratory	Sample date	Test/Species[1]	Duration of test	Test Type	TU_a	Average TU_a
Eurofins TestAmerica	3/11/2019	Acute *C. dubia*	48 hour	quarterly compliance	1.30	2.06
Pacific EcoRisk	3/11/2019	Acute *C. dubia*	48 hour	quarterly compliance	1.1	
TRE	3/11/2019	Acute *C. dubia*	48 hour	quarterly compliance	3.79	
TRE	3/19/2019	Acute *C. dubia*	48 hour	accelerated test	1.88[2]	-
TRE	4/3/2019	Acute *C. dubia*	48 hour	accelerated test	4.07	-
Pacific EcoRisk	5/10/2019	Acute *C. dubia*	48 hour	accelerated test	1.2[3]	-

Note:

[1] No *P. promelas* toxicity > 1.0 Tu_a was observed in any samples from 2015 through 2019

[2] WET test was run at 20 °C for first 24 hours due to laboratory technician error

[3] Three consecutive WET tests on samples collected 5/29/19, 6/10/19, and 6/20/19 showed < 1.0 Tu_a

Dave Enos
Teck American Incorporated
501 N Riverpoint Blvd, Suite 300
Spokane, WA 99202

May 28, 2019

Dave:

I have enclosed our report "An Acute Toxicity Identification Evaluation of Magmont Mine Effluent" for testing performed on an effluent sample collected on March 11, 2019. The results of this testing follow:

Toxicity was persistent with a 75% reduction in survival relative to the laboratory control. The cation exchange SPE and EDTA treatments completely eliminated toxicity, while the filtration and C_{18} SPE treatment reduced but did not completely eliminate the toxicity. The anion exchange treatment targeting oxyanions and rare earth metals, and the air sparging treatment targeting volatile organics and surface active compounds provided no improvement to survival. The cation exchange and EDTA treatment results suggest that cationic metals (e.g., zinc) may be causing or contributing to toxicity. While filtration and C_{18} SPE treatments are typically associated with the removal of particle bound and nonpolar organic contaminants, respectively, these treatments may also reduce dissolved cationic metal concentration through physical and chemical interactions with the filter membrane and SPE resin. Chemical analysis of baseline, cation exchange SPE, C_{18} SPE, and filtration treatments for dissolved and total recoverable metals is recommended.

If you have any questions regarding the performance and interpretation of this test, feel free to contact me at (707) 207-7760.

Sincerely,

Natalie Lynch
2019.05.28 13:18:50
-08'00'

Natalie Lynch
Project Manager

Pacific EcoRisk is accredited in accordance with NELAP (ORELAP ID 4043). Pacific EcoRisk certifies that the test results reported herein conform to the most current NELAP requirements for parameters for which accreditation is required and available. Any exceptions to NELAP requirements are noted, where applicable, in the body of the report. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk. This testing was performed under Lab Order 30515.

An Acute Toxicity Identification Evaluation of Magmont Mine Effluent

Sample collected March 11, 2019

Prepared For

Teck American Incorporated
501 N Riverpoint Boulevard, Suite 300
Spokane, WA 99202

Prepared By

Pacific EcoRisk
2250 Cordelia Road
Fairfield, CA 94534

May 2019

PACIFIC ECORISK
ENVIRONMENTAL CONSULTING & TESTING

An Acute Toxicity Identification Evaluation of Magmont Mine Effluent

Sample collected March 11, 2019

Table of Contents

Appendices

1. INTRODUCTION

Teck American Incorporated has contracted Pacific EcoRisk (PER) to perform a Toxicity Identification Evaluation (TIE) on a sample of Magmont Mine effluent collected on March 11, 2019. This TIE utilized *Ceriodaphnia dubia* as the test organism, and was initiated on May 16, 2019. This report describes the performance and results of this testing.

2. TOXICITY TEST PROCEDURES

The methods used in conducting this TIE followed the guidelines established by the following EPA manuals:

- "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-02-012); and
- "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition" (EPA/600/6-91/003).

2.1 Sample Receipt and Handling

On March 11, a sample of Magmont Mine effluent was collected into an appropriately cleaned sample container. The sample was shipped overnight, on ice and under chain-of-custody, to the PER laboratory in Fairfield, CA. Upon receipt at the laboratory, an aliquot of the sample was collected for analysis of initial water quality characteristics (Table 1), with the remaining sample being stored at <6˚C except when being used to prepare test solutions. The chain-of-custody record for the collection and delivery of this sample is presented in Appendix A.

Table 1. Initial water quality characteristics of the samples.

Sample Receipt Date	Sample ID	Temp (˚C)	pH	D.O. (mg/L)	Alkalinity (mg/L)	Hardness (mg/L)	Conductivity (µS/cm)	Total Ammonia (mg/L N)
3/11/19	Outfall 001	0.2	8.07	11.4	113	135	275	<1.0

2.2 Acute Toxicity Testing with *Ceriodaphnia dubia*

The acute toxicity test with *C. dubia* consists of exposing neonate organisms to the effluent for approximately 48 hours, after which effects on survival are evaluated. The specific procedures used in this test are described below.

The Control for this test consisted of a moderately hard synthetic reconstituted freshwater, prepared by addition of reagent grade chemicals to Type 1 lab water. The effluent was tested at 100% only. New water quality characteristics (pH, dissolved oxygen [D.O.], and conductivity) were measured on these test treatment solutions prior to use in the test.

There were four replicates for each test treatment, each replicate consisting of 15 mL of test solution in a 30-mL plastic cup. The test was initiated by allocating five neonate (<24 hours old) *C. dubia*, from in-house laboratory cultures, into each replicate cup. The replicate cups were placed in a temperature-controlled room at 20°C, under cool-white fluorescent lighting on a 16L:8D photoperiod. Routine water quality characteristics of the test waters were measured each day and at the end of the test.

After 48 (±1) hours, the test was terminated and the number of live organisms in each replicate cup was determined. The resulting survival data were analyzed to evaluate any impairment due to the effluent.

2.3 TIE Procedures

The goal of the TIE fractionation procedures is to determine the class of compound(s) (e.g., pesticides, metals, etc.) possibly contributing to sample toxicity. This is achieved by performing physical and chemical manipulations on the effluent sample. The observed changes in sample toxicity that result from these manipulations provide clues as to the nature of toxicity. The TIE manipulations performed in this evaluation consisted of:

- An untreated baseline sample;
- Filtration;
- Air sparging;
- C_{18} solid phase extraction (SPE);
- Anion exchange;
- Cation exchange SPE; and
- EDTA addition.

A brief description of each treatment is provided in the following subsections.

2.3.1 TIE Baseline Treatment

The TIE Baseline treatment consists of a test of the untreated sample to assess toxicity at the time of the performance of the TIE, and to serve as a reference benchmark against which toxicity removal by the other TIE treatments can be assessed. The physical and chemical nature of the compound(s) responsible for the observed toxicity can be determined by the pattern of toxicity removal by the TIE treatments relative to the Baseline treatment. Testing with the baseline treatment was performed as described in Section 2.2.

2.3.2 TIE Treatment Blanks

Where appropriate, a treatment blank is utilized for each TIE fractionation treatment to determine whether the fractionation procedure itself may have contributed artefactual toxicity to the manipulated sample. The method blanks for these TIE treatments consist of aliquots of Lab Control medium that were subjected to each of the selected treatments in an identical fashion as the effluent. Artifactual toxicity contributed by the TIE treatments was assessed via comparison to the untreated Lab Water Control.

2.3.3 Filtration Treatment

Filtration of the effluent sample can affect toxicity through the removal of toxicants associated with suspended particulates and from sorption of toxicants to the filtration membrane. An aliquot of the effluent sample was passed through a 0.45-µm PES membrane filter. A method blank was prepared in a similar fashion.

2.3.4 Air Sparging Treatment

Sparging of the effluent can affect toxicity through the removal of volatile compounds and surface active compounds such as surfactants and polymers. The sparging gas utilized atmospheric air and the sparging vessel comprised of a tall cylindrical glass graduated cylinder. Air was delivered to the sparging vessel through a glass gas dispersion tube for one hour. A method blank was prepared in a similar fashion.

2.3.5 C_{18} SPE Treatment

The C_{18} SPE treatment is used to identify toxicity that is due to non-polar organics and some relatively non-polar metal chelates that are removed or sorbed onto the octadecyl chromatographic resin (C_{18}). An appropriate volume of the sample was passed over the pre-conditioned C_{18} SPE column. A method blank was prepared in a similar fashion.

2.3.6 Anion Exchange Treatment

The anion exchange treatment is used to identify toxicity that is due to anionic contaminants (e.g., oxyanions and rare earth metal) that are removed or sorbed onto a resin. The sample and loose resin were combined in a glass container and mixed on a shaker for one hour. After the mixing period, the resin was allowed to settle for 15 minutes after which the sample supernatant was decanted into a glass beaker. Alkalinity was restored through the a proportional add-back of sodium bicarbonate. A method blank was prepared in a similar fashion.

2.3.7 Cation Exchange SPE Treatment

The cation-exchange SPE treatment is a treatment used to identify toxicity that is due to cationic contaminants that are removed or sorbed on to a resin that is specific for divalent cations and metals. An appropriate volume of the sample was passed over the pre-conditioned cation-exchange SPE column. Hardness was restored through the a proportional add-back of calcium and magnesium chloride. A method blank was prepared in a similar fashion.

2.3.8 EDTA Treatment

Ethylenediaminetetraacetic Acid (EDTA) treatment is used to identify toxicity that is due to cationic contaminants (e.g., metals) that can be rendered biologically unavailable via chelation. A stock EDTA solution was prepared, and aliquots of the effluent were spiked with EDTA prior to their use in the TIE. Two EDTA treatments were used: 3 mg/L EDTA and 8 mg/L EDTA. As per EPA TIE guidelines, no method blank is tested with the EDTA treatment.

3. RESULTS

The results of this TIE are summarized in Table 2, and are discussed in greater detail below. The test data for the TIE are presented in Appendix B.

Toxicity was persistent with a 75% reduction in survival relative to the laboratory control. The cation exchange SPE and EDTA treatments completely eliminated toxicity, while the filtration and C_{18} SPE treatment reduced but did not completely eliminate the toxicity. The anion exchange treatment targeting oxyanions and rare earth metals, and the air sparging treatment targeting volatile organics and surface active compounds provided no improvement to survival. The cation exchange and EDTA treatment results suggest that cationic metals (e.g., zinc) may be causing or contributing to toxicity. While filtration and C_{18} SPE treatments are typically associated with the removal of particle bound and nonpolar organic contaminants, respectively, these treatments may also reduce dissolved cationic metal concentration through physical and chemical interactions with the filter membrane and SPE resin.

Table 2. Effects of TIE treatments on Magmont Mine effluent toxicity to *Ceriodaphnia dubia.*

TIE Treatment	Survival (%)		Effects of TIE Treatment on Baseline?
	Control/Blank	100% Sample	
Baseline	100	25 (RTC: 75% reduction)	**Sample is toxic**
Filtration	100 (RTC: no difference)	55 (RTMB: 45% reduction) (RTB: 30% increase)	Toxicity is reduced
Air Sparging	100 (RTC: no difference)	5 (RTMB: 95% reduction) (RTB: 20% reduction)	Toxicity is increased
C_{18} SPE	100 (RTC: no difference)	85 (RTMB: 15% reduction) (RTB: 60% increase)	Toxicity is reduced
Anion Exchange	75 (RTC: 25% reduction)	0 (RTMB: 75% reduction) (RTB: 25% reduction)	Toxicity is increased, blank interference present
Cation Exchange SPE	55 (RTC: 45% reduction)	100 (RTMB: 45% increase) (RTB: 75% increase)	Toxicity is **removed,** blank interference present
EDTA @ 3 mg/L	-	100 (RTB: 75% increase)	Toxicity is **removed**
EDTA @ 8 mg/L	-	100 (RTB: 75% increase)	Toxicity is **removed**

RTC – Absolute difference as compared to Control treatment (i.e., Lab Water Control).
RTB – Absolute difference as compared to Baseline treatment (i.e., untreated effluent).
RTMB – Absolute difference as compared to Treatment Blank (i.e., TIE-treated Lab Water).

4. SUMMARY AND CONCLUSIONS

A TIE utilizing *Ceriodaphnia dubia* was performed on a sample of Magmont Mine effluent collected March 11, 2019. The results of this testing are summarized below:

Toxicity was persistent with a 75% reduction in survival relative to the laboratory control. The cation exchange SPE and EDTA treatments completely eliminated toxicity, while the filtration and C_{18} SPE treatment reduced but did not completely eliminate the toxicity. The anion exchange treatment targeting oxyanions and rare earth metals, and the air sparging treatment targeting volatile organics and surface active compounds provided no improvement to survival. The cation exchange and EDTA treatment results suggest that cationic metals (e.g., zinc) may be causing or contributing to toxicity. While filtration and C_{18} SPE treatments are typically associated with the removal of particle bound and nonpolar organic contaminants, respectively, these treatments may also reduce dissolved cationic metal concentration through physical and chemical interactions with the filter membrane and SPE resin. Chemical analysis of baseline, cation exchange SPE, C_{18} SPE, and filtration treatments for dissolved and total recoverable metals is recommended.

4.1 QA/QC Summary

Test Conditions - All test conditions (pH, D.O., etc.) were within acceptable limits. All analyses were performed according to laboratory Standard Operating Procedures.

Negative Control - The test organism biological responses at the Lab Control treatments were within acceptable limits.

Treatment Blank Interference – Blank interference was present in the anion and cation exchange treatments. Interference in the anion exchange treatment may have been responsible for the apparent increase in anion exchange treatment toxicity relative to the baseline. Interference in the cation exchange treatment had no apparent effect on the efficacy of the cation exchange treatment when compared to the baseline.

Appendix A

Chain-of-Custody Record for the Collection and Delivery of the Sample

Pacific EcoRisk
2250 Cordelia Rd.. Fairfield. CA 94534
(707) 207-7760 FAX (707) 207-7916

CHAIN-OF-CUSTODY RECORD

Results To:	AECOM	**Invoice To:**	Teck American, Inc.
Address:	100 N. Broadway 20th Floor St. Louis, MO 63102	**Address:**	501 N. Riverpoint Blvd Ste 300 Spokane, WA 99202
Phone:	314-429-0100	**Phone:**	509-459-4451
Attn:	Samuel Fisher, Cristy Kessel	**Attn:**	
E-mail:	samuel.fisher@aecom.com; andrew.burkemper@aecom.com; cristy.kessel@teck.com	**E-mail:**	
Project Name:	Magmont - NPDES		
P.O.#/Ref:			

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Grab/ Comp	Container Number	Container Type	Acute Ceriodaphnia dubia Survival, 48h, EPA 2000.0	Acute Fathead Minnow Toxicity, 48h (EPA 2000.0)
1	Outfall 001	3-1-19	1110	EFF	Grab	1	2.5 gallon Cube	X	X
2	Outfall 001 - Upstream	3-1-19	1140	RW	Grab	1	2.5 gallon Cube	X	X
3									
4									
5									
6									
7									
8									
9									
10									

REQUESTED ANALYSIS

Samuel Fisher

Samples collected by:

Comments/Special Instruction:

Airbill tracking # 7746 2498 2742

RELINQUISHED BY:	Samuel Fisher	**RECEIVED BY:**	
Signature:	Samuel Fisher	**Signature:**	Fed Ex
Print:		**Print:**	Fed Ex
Organization:	AECOM	**Organization:**	Fed Ex
Date:	3-1-19 **Time:** 1700	**Date:**	3-1-19 **Time:** 1700
RELINQUISHED BY:		**RECEIVED BY:**	
Signature:		**Signature:**	
Print:		**Print:**	PER Ivana Djordjevic
Organization:		**Organization:**	PER
Date:	**Time:**	**Date:**	03/12/19 **Time:** 0835

***Example Matrix Codes:** (**EFF** - Effluent) (**FW** = Freshwater); (**SW** = Saltwater); (**RW** = Receiving Water); (**STRMW** = Stormwater); (**SED** = Sediment); or other

Appendix B

Test Data for the Toxicity Identification Evaluation of Magmont Mine Effluent to *Ceriodaphnia dubia*

96 Hour Acute *Ceriodaphnia dubia* Toxicity Test Data

Client: **Teck: Magmont Mine** Test Date: 5/14/19

Test Material: Outfall-001 Control: MOD EPA MH

Test ID#: 83878 Project #: 30515 Control Water Batch: 399

Feeding T0 Time: 1300 Initials: KL Culture Number/Source: 3900-3903

Treatment	Temp (°C)	pH New	pH Old	D.O. New	D.O. Old	Conductivity (µS/cm)	# Live Animals A	B	C	D	Sign-Off
Lab Water Control	19.6	8.01		9.4		364	5	5	5	5	Sample ID: 52294
Filtration Blank	19.5	7.94		9.6		359	5	5	5	5	Test Solution Prep: WC
Sparging Blank	19.5	8.06		9.4		365	5	5	5	5	New WQ: WC
C18 Blank	19.6	8.04		9.4		365	5	5	5	5	Initiation Date: 5/14/19
Anion Exchange Blank	19.7	7.96		10.0		513	5	5	5	5	Initiation Time: 1553
Cation Exchange Blank	19.6	7.99		10.3		507	5	5	5	5	Initiation Signoff: SMC
100% Baseline	19.5	7.93		10.5		265	5	5	5	5	
100% Filtration	19.6	8.07		10.2		262	5	5	5	5	
100% Sparging	19.5	8.23		9.6		264	5	5	5	5	
100% C18	19.5	8.14		9.1		266	5	5	5	5	
100% Anion Exchange	19.7	8.24		9.7		484	5	5	5	5	
100% Cation Exchange	19.5	7.97		9.7		339	5	5	5	5	
100% + EDTA @ 3 mg/L	19.7	7.98		10.6		264	5	5	5	5	
100% + EDTA @ 8 mg/L	19.5	7.88		10.6		264	5	5	5	5	
Meter ID	112A	PH24		RD11		EC11					
Lab Water Control	19.7		7.79		8.5	368	5	5	5	5	Date: 5/15/19
Filtration Blank	19.8		7.91		8.5	370	5	5	5	5	Count Time: 1553
Sparging Blank	19.8		7.91		8.6	376	5	5	5	5	Count Signoff: SD
C18 Blank	19.8		7.88		8.7	383	5	5	5	5	Old WQ: SD
Anion Exchange Blank	19.8		7.82		8.6	517	5	5	5	5	
Cation Exchange Blank	19.7		7.46		8.7	518	5	5	5	5	
100% Baseline	19.6		7.93		8.7	277	5	5	5	1	
100% Filtration	19.7		8.06		8.7	277	5	5	5	5	
100% Sparging	19.9		8.09		8.6	268	3	5	5	4	
100% C18	20.1		8.10		8.6	269	5	5	5	5	
100% Anion Exchange	20.2		8.00		8.6	485	4	3	3	5	
100% Cation Exchange	20.3		7.64		8.5	352	5	5	5	5	
100% + EDTA @ 3 mg/L	20.2		8.06		8.6	271	5	5	5	5	
100% + EDTA @ 8 mg/L	20.1		8.10		8.7	272	5	5	5	5	
Meter ID	57		PH25		RD10	EC10					
Lab Water Control	19.4		7.81		7.0	379	5	5	5	5	Termination Date: 5/16/19
Filtration Blank	19.4		7.84		8.2	385	5	5	5	5	Termination Time: 1553
Sparging Blank	19.4		7.80		8.3	385	5	5	5	5	Termination Signoff: ARF
C18 Blank	19.4		7.80		8.4	382	5	5	5	5	Old WQ: ARF
Anion Exchange Blank	19.4		7.65		8.2	533	5	5	5	5	
Cation Exchange Blank	19.4		7.05		8.4	538	1	3	3	4	
100% Baseline	19.6		7.91		8.6	273	0	4	1	0	
100% Filtration	19.6		7.96		7.5	281	4	3	2	2	
100% Sparging	19.4		7.99		8.3	283	0	0	0	1	
100% C18	19.6		8.00		8.5	278	5	4	4	4	
100% Anion Exchange	19.4		7.91		8.5	507	0	0	0	0	
100% Cation Exchange	19.6		7.43		8.5	360	5	5	5	5	
100% + EDTA @ 3 mg/L	19.4		8.11		8.4	287	5	5	5	5	
100% + EDTA @ 8 mg/L	19.4		8.10		8.1	281	5	5	5	5	
Meter ID	99		PH24		RD11	EC14					