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-0000086
Owner:	The Doe Run Resources Corporation d/b/a The Doe Run Company
Address:	1801 Park 270 Drive, St. Louis, MO 63146
Continuing Authority:	The Doe Run Resources Corporation d/b/a The Doe Run Company
Address:	P.O. Box 500, Viburnum, MO 65566
Facility Name:	Doe Run Company, Viburnum Operations
Facility Address:	PO Box 500, Viburnum, Missouri 65566
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

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

FACILITY DESCRIPTION

See Page Two. Mineral Mine SIC #1031; NAICS # 212231. Doe Run Viburnum Operations engages in the mining and milling of ores subject to 40 CFR 440 Subpart J. The facility has five permitted outfalls. This facility does not require a certified wastewater operator.

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, 2017 — Effective Date
February 1, 2021 — Modification Date

Edward B. Galbraith, Director, Division of Environmental Quality

September 30, 2022 — Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (CONTINUED)

Outfall #001 – Outfall removed from monitoring prior to 1994

Outfall #002 – Old Tailings Impoundment discharge and mine dewatering from mining of lead, zinc, and copper bearing ores, tailings dam toe drain discharge, industrial sludge, truck wash water, stormwater runoff from the facility and surrounding watershed that collects in New and Old Viburnum Tailings Impoundments and undergoes treatment via settling. Mine water is pumped up to the tailings impoundments and undergoes treatment via settling. Stormwater is also pumped to the tailings impoundment to achieve treatment via settling. A water treatment plant that became operational January 2017 treats process wastewater and stormwater from the tailings impoundment, as needed, by pH adjustment, coagulation, metals chemical precipitation, flocculation, clarification, and settling..– SIC #1031
Design flow is17.28 MGD.
Maximum flow: dependent upon precipitation
Legal Description: NW ¼, SW ¼, Sec. 19, T35N, R1W, Iron County
UTM Coordinates: X=668185, Y=4177511
Receiving Stream: Indian Creek
First Classified Stream and ID: Indian Creek (P) (1946)
USGS Basin & Sub-watershed No.: (07140102 – 0302)

Outfall #003 – Outfall removed from monitoring in the 2011 modification.

Outfall #004 – Settling basin discharge - mine dewatering/stormwater runoff from mining of lead, zinc and copper bearing ores and from the stormwater retention basin (Outfall #008). Water collected in the basin is combined, undergoes treatment via settling and is pumped to the Old Viburnum Tailings Impoundment – SIC #1031
Maximum measured and reported flow is 5.3 MGD. Flow is dependent on precipitation.
Legal Description: NE ¼, SE ¼, Sec. 7, T35N, R1W, Washington County
UTM Coordinates: X=669361, Y=4180820
Receiving Stream: Tributary to Indian Creek (C) (3663)
First Classified Stream and ID: Tributary to Indian Creek (C) (3663) 303(d)
USGS Basin & Sub-watershed No.: (07140102 – 0302)

Outfall #005 –Emergency Spillway from New Tailings Impoundment - process wastewater from mining of lead, zinc and copper bearing ores/tailings dam toe drain discharge/stormwater runoff from facility and surrounding watershed.
Water collected in the impoundment is combined and undergoes treatment via settling – SIC #1031
Legal Description: SE ¼, SW ¼, Sec. 36, T35N, R2W, Iron County
UTM Coordinates: X=667242, Y=4173922
Receiving Stream: Indian Creek
First Classified Stream and ID: Indian Creek (P) (1946)
USGS Basin & Sub-watershed No.: (07140102 – 0302)

Outfall #006 – New Tailings Impoundment toe drain basin/stormwater overflow – tailings dam toe drain/stormwater discharge.
Tailings dam toe drain/stormwater overflow that cannot be pumped to the tailings impoundment – SIC #1031
Legal Description: NW ¼, NE ¼, Sec. 36, T35N, R2W, Iron County
UTM Coordinates: X=667400, Y=4175278
Receiving Stream: Tributary to Indian Creek
First Classified Stream and ID: Indian Creek (P) (1946)
USGS Basin & Sub-watershed No.: (07140102 – 0302)

Outfall #007– Instream monitoring point. Outfall removed from monitoring in the 2009 renewal.

Outfall #008- Emergency Spillway from retention basin. The retention basin will be operated in a no-discharge fashion by pumping back to the mine dewatering settling basins (Outfall #004) with a maximum pumping capacity of 1,000 gallon per minute.
Legal Description: SE ¼, SE ¼, Sec 07, T35N, R01W, Washington County
UTM Coordinates: X = 669456, Y = 4180559
Receiving Stream: Indian Creek (P) (1946) 303(d)
First Classified Stream and ID: Indian Creek (P) (1946) 303(d)
USGS Basin & Sub-watershed No.: (07140102 – 0302)
Flow dependent on precipitation

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

OUTFALL #002	TABLE A-1 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, 2017** and remain in effect until a renewal permit is issued. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
PHYSICAL						
Flow	MGD	*		*	once/month	24 hr. est.
Precipitation	inches	*		*	once/month	24 hr. tot.
CONVENTIONAL						
pH (Note 1)	SU	6.5 – 9.0		6.5 – 9.0	once/month	grab
Total Suspended Solids	mg/L	30		20	once/month	grab
Oil and Grease	Mg/L	15		10	once/month	grab
METALS						
Cadmium, Total Recoverable	µg/L	2.58		1.01	once/month	grab
Copper, Total Recoverable	µg/L	40.1		20	once/month	grab
Lead, Total Recoverable	µg/L	12.4		6.2	once/month	grab
Zinc, Total Recoverable	µg/L	227.7		113.5	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE NOVEMBER 28, 2017. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN THE DISCHARGED WATER IN OTHER THAN TRACE AMOUNTS.						
NUTRIENTS						
Nitrogen, Total (TN)	mg/L	*			once/quarter	grab
TOXICITY						
Whole Effluent Toxicity, Chronic (Note 2)	TUc	1.6			once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2018. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN THE DISCHARGED WATER IN OTHER THAN TRACE AMOUNTS.						
METALS						
Mercury, Total Recoverable	µg/L	2		1	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED YEARLY; THE FIRST REPORT IS DUE JANUARY 28, 2018. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN THE DISCHARGED WATER IN OTHER THAN TRACE AMOUNTS.						

* Monitoring requirement only

Note 1 pH is measured in pH units and is not to be averaged. The facility will report minimum and maximum values.

Note 2 See special condition #15 for WET testing information.

QUARTERLY SAMPLING SCHEDULE

Minimum Sampling Requirements			
Quarter	**Months**	**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

OUTFALLS #004, #005 & #006	**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, 2017** and remain in effect until a renewal permit is issued. 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 AVG	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
PHYSICAL						
Flow	MGD	*		-	once/day 𝕏	estimate
Precipitation	Inches	*		-	once/day 𝕏	measured
CONVENTIONAL						
pH – Units (Note 1)	SU	6.5-9.0		-	once/day 𝕏	grab
Total Suspended Solids	mg/L	30		-	once/day 𝕏	grab
METALS						
Cadmium, Total Recoverable	µg/L	9.61		-	once/day 𝕏	grab
Copper, Total Recoverable	µg/L	26.5		-	once/day 𝕏	grab
Lead, Total Recoverable	µg/L	140.4		-	once/day 𝕏	grab
Mercury, Total Recoverable	µg/L	2		-	once/day 𝕏	grab
Zinc, Total Recoverable	µg/L	216.6		-	once/day 𝕏	grab
MONITORING REPORTS SHALL BE SUBMITTED THE MONTH FOLLOWING THE DAY OF DISCHARGE. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN THE DISCHARGED WATER IN OTHER THAN TRACE AMOUNTS.						
OUTFALL #008 (NOTE 2)						
PHYSICAL						
Flow	MGD	*		-	once/day 𝕏	estimate
Precipitation	Inches	*		-	once/day 𝕏	measured
CONVENTIONAL						
pH – Units (Note 1)	SU	*		-	once/day 𝕏	grab
Total Suspended Solids	mg/L	*		-	once/day 𝕏	grab
METALS						
Cadmium, Total Recoverable	µg/L	*		-	once/day 𝕏	grab
Copper, Total Recoverable	µg/L	*		-	once/day 𝕏	grab
Lead, Total Recoverable	µg/L	*		-	once/day 𝕏	grab
Mercury, Total Recoverable	µg/L	*		-	once/day 𝕏	grab
Zinc, Total Recoverable	µg/L	*		-	once/day 𝕏	grab
MONITORING REPORTS SHALL BE SUBMITTED THE MONTH FOLLOWING THE DAY OF DISCHARGE. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN THE DISCHARGED WATER IN OTHER THAN TRACE AMOUNTS.						

* Monitoring requirement only.

𝕏 Once per day sampling means the facility will sample at least once each day a discharge occurs. The facility will report the results following the month of the cessation of discharge. The eDMR system will accept values for the previous month. This is conditional reporting therefore no report is due if no discharge occurred.

Note 1 pH is measured in pH units and is not to be averaged. The facility will report minimum and maximum values.

Note 2 Emergency overflow from outfall #008 stormwater retention basin. The retention basin will be operated in a no-discharge fashion by pumping back to the Old Tailings Impoundment with an established maximum pumping capacity of 1,000 gallons per minute. Flows in excess of the pumping capacity may be discharged provided the excess flow is being generated by catastrophic or chronic storm events as defined by 10 CSR 20-6.015.

B. STANDARD CONDITIONS

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

C. SPECIAL CONDITIONS

1. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the CWA section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), §304(b)(2), and §307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or controls any pollutant not limited in the permit.

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

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

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

5. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 *et. seq.*) and the use of such pesticides shall be in a manner consistent with its label.

6. Outfalls #004, #005 and #006 only: 40 CFR 440.131(b) *Storm exemption for facilities permitted to discharge.* If, as a result of precipitation or snowmelt, a source with an allowable discharge under 40 CFR part 440 has an overflow or excess discharge of effluent which does not meet the limitations of 40 CFR part 440, the source may qualify for an exemption from such limitations with respect to such discharge if the following conditions are met:
   (a) The facility is designed, constructed and maintained to contain the maximum volume of wastewater which would be generated by the facility during a 24-hour period without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event or treat the maximum flow associated with these volumes. In computing the maximum volume of wastewater which would result from a 10-year, 24-hour precipitation event, the facility must include the volume which would result from all areas contributing runoff to the individual treatment facility, *i.e.*, all runoff that is not diverted from the active mining area and runoff which is not diverted from the mill area.
   (b) The facility takes all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow.
   (c) The facility complies with the notification requirements of §122.60 (g) and (h). The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.

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

C. SPECIAL CONDITIONS (CONTINUED)

8. Electronic Discharge Monitoring Report (eDMR) Submission System
   (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
   (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
      (1) Schedule of Compliance Progress Reports; and
      (2) Any additional report required by the permit excluding bypass reporting.

      After such a system has been made available by the department, required data shall be directly input into the system by the next report due date.
   (c) Other actions. The following shall be submitted electronically after such a system has been made available by the department:
      (1) General Permit Applications/Notices of Intent to discharge (NOIs);
      (2) Notices of Termination (NOTs); and
      (3) No Exposure Certifications (NOEs).
   (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.

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

10. The facility's SIC code(s) is found in 40 CFR 122.26(b)(14) and/or 10 CSR 20-6.200(2) hence shall implement a SWPPP which must be prepared and implemented upon permit issuance. The SWPPP must be kept on-site and should not be sent to the department unless specifically requested. The SWPPP must be reviewed and updated every five (5) years or as site conditions change (see Part III: Antidegradation Analysis and SWPPP sections in the fact sheet). The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in: *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (EPA 833-B-09-002) published by the EPA in February 2009 (www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf). The 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. The BMPs should be designed to treat the stormwater up to the 10 year, 24 hour rain event.
   (b) The SWPPP must include a schedule for once per month site inspections and brief written reports. The inspection report must include precipitation information for the entire period since last inspection, as well as observations and evaluations of BMP effectiveness. Throughout coverage under this permit, the facility must perform ongoing SWPPP review and revision to incorporate any site condition changes.
      i. Operational deficiencies must be corrected within seven (7) calendar days.
      ii. Minor structural deficiencies must be corrected within fourteen (14) calendar days.
      iii. Major structural deficiencies must be reported to the regional office within seven (7) days of discovery. The initial report shall consist of the deficiency noted, the proposed remedies, the interim or temporary remedies (including the general timing of the placement of the interim measures), and an estimate of the timeframe needed to wholly complete the repairs or construction. The permittee will work with the regional office to determine the best course of action, including but not limited to temporary structures to control stormwater runoff. The facility shall correct the major structural deficiency as soon as reasonably achievable.
      iv. All actions taken to correct the deficiencies shall be included with the written report.
      v. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to department and EPA personnel upon request.

C. SPECIAL CONDITIONS (CONTINUED)

(c) A provision for designating an individual to be responsible for environmental matters.
(d) A provision for providing training to all supervisory personnel responsible for material handling and storage, and housekeeping of maintenance and cleaning areas.

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

12. The purpose of the SWPPP and the BMPs listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.

13. To protect the general criteria found at 10 CSR 20-7.031(4), before releasing water accumulated in secondary containment areas, it must be examined for hydrocarbon odor and presence of sheen. If the presence of odor or sheen is indicated, the water shall be treated using an appropriate method or disposed of in accordance with legally approved methods, such as being sent to a wastewater treatment facility. Following treatment, the water shall be tested for oil and grease, benzene, toluene, ethylbenzene, and xylene using 40 CFR part 136 methods. All pollutant levels must be below the most protective, applicable standards for the receiving stream, found in 10 CSR 20-7.031 Table A. Records of all testing and treatment of water accumulated in secondary containment shall be stored in the SWPPP to be available on demand to DNR and EPA personnel.

14. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the SWPPP and made available to the department upon request.

15. Chronic 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 chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136).* The permittee shall concurrently conduct 7-day, static, renewal toxicity tests with the following species:
- The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
- The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).

(b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
(c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
(d) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
(e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
(f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

C. SPECIAL CONDITIONS (CONTINUED)

(g) Accelerated Testing Trigger: If the regularly scheduled chronic WET test exceeds the TU_c 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_c. This permit requires the following additional toxicity testing if any one test result exceeds a TU_c 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_c 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_c 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_c 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_c limit.

(h) TIE/TRE Trigger: The following shall apply upon the exceedance of the TU_c 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_c 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.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATEMENT OF BASIS
MO-0000086
DOE RUN-VIBURNUM OPERATIONS

This Statement of Basis (Statement) gives pertinent information regarding minor modification(s) to the above listed operating permit without the need for a public comment process. A Statement is not an enforceable part of a Missouri State Operating Permit.

Part I – Facility Information

Facility Type: Major Categorical Industrial
Facility Description: Doe Run Viburnum Operations engages in the mining of ores subject to 40 CFR 440 Subpart J.

Part II – Modification Rationale

This operating permit is hereby modified to reflect an increase in treatment capacity within the existing CoMag treatment system. The updates to the treatment system will increase pump sizes and update other necessary appurtenances in order to utilize more treatment capacity within the existing CoMag system. This will allow the facility to direct additional flow related to rainfall events through the treatment system and reduce the need to direct portions of the flows from the tailings pond around the CoMag treatment system.

This operating permit is also hereby modified to reflect a change in design flow at outfall #002 and Cadmium limits at outfalls #002 which were updated to reflect new water quality criteria. Maximum daily limits for cadmium, copper, lead, and zinc at outfalls #004, #005 and #006 were changed to reflect the protection of acute water quality criteria.

No other changes were made at this time.

RATIONALE AND DERIVATION OF EFFLUENT LIMITATIONS

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.
  - ✓ Other:
    - Effluent limitations for cadmium at outfall 002 were revised based on new water quality standards. The raised effluent limitations provided in this permit comply with the new limits approved by the EPA and are expected to remain protective of the receiving stream's uses to be maintained.
    - Outfalls 004, 005, and 006 are designed to be no-discharge settling basins. These outfalls are allowed to discharge only during chronic or catastrophic storm events. Therefore, effluent limitations for cadmium, copper, lead, mercury, and zinc were calculated using acute criteria only.

Part III. EFFLUENT LIMITS DETERMINATION

OUTFALL #002– MAIN FACILITY OUTFALL

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAXIMUM	MONTHLY AVERAGE	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
METALS							
CADMIUM, TR	µg/L	2.58	1.01	0.9/0.5	ONCE/MONTH	ONCE/MONTH	GRAB

TR = total recoverable

DERIVATION AND DISCUSSION OF LIMITS:

Cadmium, Total Recoverable. The categorical effluent limit in 40 CFR 440.102(b) requires a cadmium maximum daily concentration of 0.10 mg/L (100 µg/L) and a monthly average of 0.05 mg/L (50 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. (Table A2 of 10 CSR 20-7, pg.34)

Acute AQL: e^(1.0166 * ln206 – 3.062490) * (1.136672 – ln206 *0.041838) = 9.618 µg/L [at hardness 206]
Chronic AQL: e^(0.7977 * ln206 – 3.909) * (1.101672 – ln206*0.041938) = 1.236 µg/L [at hardness 206]
TR Conversion: AQL/Translator = 9.618 / 0.914 = 10.526 [at hardness 206]
TR Conversion: AQL/Translator = 1.236 / 0.879 = 1.406 [at hardness 206]
LTAa: WLAa * LTAa multiplier = 10.526 * 0.2 = 2.106 [CV: 1.022, 99th %ile]
LTAc: WLAc * LTAc multiplier = 1.406 * 0.366 = 0.515 [CV: 1.022, 99th %ile]
use most protective LTA: 0.515
Daily Maximum: MDL = LTA * MDL multiplier = 0.515 * 4.999 = 2.58 µg/L [CV: 1.022, 99th %ile]
Monthly Average: AML = LTA * AML multiplier = 0.515 * 1.966 = 1.01 µg/L [CV: 1.022, 95th %ile, n=4]

OUTFALL #004, #005 & #006– NO DISCHARGE TAILINGS BASIN

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAXIMUM	MONTHLY AVERAGE	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
METALS							
CADMIUM, TR	µg/L	9.61	-	0.7/0.3	once/day 𝕏	ONCE/MONTH	GRAB
COPPER, TR	µg/L	26.5	-	20.8/10.4	once/day 𝕏	ONCE/MONTH	GRAB
LEAD, TR	µg/L	140.4	-	10.9/5.4	once/day 𝕏	ONCE/MONTH	GRAB
MERCURY, TR	µg/L	2	-	2/1	once/day 𝕏	ONCE/MONTH	GRAB
ZINC, TR	µg/L	216.6	-	195.0/97.0	once/day 𝕏	ONCE/MONTH	GRAB

TR = total recoverable
𝕏 = Once per day sampling means the facility will sample at least once each day a discharge occurs. The facility will report the results following the month of the cessation of discharge. The eDMR system will accept values for the previous month. This is conditional reporting therefore no report is due if no discharge occurred.

DERIVATION AND DISCUSSION OF LIMITS:

Cadmium, Total Recoverable. The categorical effluent limit in 40 CFR 440.102(b) requires a cadmium maximum daily concentration of 0.10 mg/L (100 µg/L). The water quality based effluent limitations are calculated below, and are more protective than the categorical effluent limits. (Table A2 of 10 CSR 20-7, pg.34)

Acute AQL: e^(1.0166 * ln206 – 3.062490) * (1.136672 – ln206 *0.041838) = 9.618 µg/L [at hardness 206]

Copper, Total Recoverable. The categorical effluent limit in 40 CFR 440.102(b) requires a copper maximum daily concentration of 0.30 mg/L (300 µg/L). The water quality based effluent limitations are calculated below, and are more protective than the categorical effluent limits. (Table A2 of 10 CSR 20-7, pg.34)

Acute AQL: e^(0.9422 * ln206 – 1.700300) * (0.960) = 26.544 µg/L [at hardness 206]

Lead, Total Recoverable. The categorical effluent limit in 40 CFR 440.102(b) requires a lead maximum daily concentration of 0.6 mg/L (600 µg/L). The water quality based effluent limitations are calculated below, and are more protective than the categorical effluent limits. (Table A2 of 10 CSR 20-7, pg.34)

Acute AQL: e^(1.273 * ln206 – 1.460448) * (1.46203 – ln206 * 0.145712) = 140.417 µg/L [at hardness 206]

Mercury, Total Recoverable. The categorical effluent limit in 40 CFR 440.102(b) requires a mercury maximum daily concentration of 0.002 mg/L (2.0 µg/L). Facility demonstrated during previous permit cycles that reasonable potential does not exist for exceedance of Water Quality Standards. This facility is subject to an Effluent Limit Guideline (ELG) for Mercury, and cannot certify that no Mercury exists in the wastewater; the categorical effluent limit must be applied.

Zinc, Total Recoverable. The categorical effluent limit in 40 CFR 440.102(b) requires a zinc maximum daily concentration of 1.0 mg/L (1,000 µg/L). The water quality based effluent limitations are calculated below, and are more protective than the categorical effluent limits. (Table A2 of 10 CSR 20-7, pg.34)

Acute AQL: e^(0.8473 * ln206 + 0.884) * 0.98 = 216.612 µg/L [at hardness 206]

Part IV – Administrative Requirements

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

PUBLIC NOTICE:
The Department shall give public notice a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in 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 facility must be notified of the denial in writing. http://dnr.mo.gov/env/wpp/permits/pn/index.html

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 December 18, 2020 to January 18, 2021. Public notice comments warranted minor modification to the terms and conditions of the permit. Paragraph 10(d) on page 8 of the permit asked Doe Run's SWPPP to include training for all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. This was revised to include specific supervisory personnel instead of all personnel.

DATE OF FACT SHEET: AUGUST 12, 2020

COMPLETED BY:

KYLE O'ROURKE, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - INDUSTRIAL WASTEWATER UNIT
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MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL OF
MO-0000086
DOE RUN-VIBURNUM OPERATIONS

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

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

Part IV. FACILITY INFORMATION

Facility Type: Major Categorical Industrial
Facility SIC Code(s): 1031
NAICS Code(s): 212231
Application Date: 06/06/2014
Expiration Date: 12/03/2014
Last Inspection: 02/26/2014 Not in Compliance

FACILITY DESCRIPTION:
This facility is involved with the mining and milling of ores. Changes that have occurred at the facility include the construction of the treatment plant at Outfall #002 utilizing pH adjustment, chemical addition (CoMag), coagulation, and flocculation. Doe Run is piping process wastewater from Viburnum Casteel (MO-0100226) to the Viburnum Operations for treatment. The design flow of the new treatment plant is 8,000 gpm with a max treatment flow of 10,000 gpm. Starting in June 2016, flows up to 4500 gpm were being pumped from Casteel to Viburnum. Flows are deposited into the tailings impoundment for additional settling and mixing with process flows at Viburnum before treatment.

In 2013, Viburnum added Outfalll #008 which is an emergency spillway on a detention basin, approximately 0.50 acres in size, collecting stormwater runoff from 4.52 acres. The stormwater detention basin will collect stormwater runoff from the industrial areas. The detention basin stores stormwater and pumps back capabilities to 1,000 gpm. The emergency spillway, outfall #008, would only discharge if rainfall exceeds the 10 year precipitation event. The facility will normally be operated in a no-discharge manner unless flows exceed pumping capacity. Along with the establishment of the emergency spillway, Doe Run installed an additional culvert between cell D and cell E to provide additional discharge conveyance capacity to cell D to reduce the potential for overflow. The modification to the cell berm does not change the permitted design flow for outfall #004 or introduce new pollutants to the system.

PERMITTED FEATURES TABLE:

OUTFALL	AVERAGE FLOW (MGD)	DESIGN FLOW (MGD)	TREATMENT LEVEL	EFFLUENT TYPE
#002	2.3	11.52	settling, pH adjustment, coagulation, precipitation, flocculation, clarification	Industrial-tailings, mine water, stormwater
#004	2.11		Settling	Industrial-mine water, stormwater
#005	--	No discharge	Settling, no discharge	Industrial, stormwater
#006	--	No discharge	Settling, no discharge	Industrial, stormwater
#008	--	No discharge	Settling, no discharge	Industrial, stormwater

FACILITY PERFORMANCE HISTORY & COMMENTS:

- The electronic discharge monitoring reports were reviewed for the last five years. The facility was under a consent decree to upgrade the water treatment plant discharging to Outfall #002, the main process outfall.
- The facility completed a dissolved metals translator study in 2011, which impacted the final effluent limits the facility needed to meet and compliance with the TMDL.
- The new treatment plant went online in November 2016.
- The facility was granted a stay on lead, zinc, and cadmium effluent limits from 2011 through 2016 to allow time for upgrades.
- The last inspection was February 26, 2014.
- For Outfall #004, the facility has discharged 65 times since January 1, 2011. The maximum flow reported is 5.3 MGD, with an average flow, when discharging of 2.11 MGD.
- For Outfalls #005 and #006 metals limitations were calculated using chronic criteria because discharges are not prohibited nor are qualified based on any storm event. These outfalls are process water, influenced by stormwater.
- For Outfall #008, it has monitoring only, as it is stormwater only and in most cases is pumped back to discharge through Outfall #004. Outfall #008 was previously public noticed in 2013 with monitoring only when discharging prior to the issuance of CP0001497.
- The previous permit was monthly sampling for Outfalls #005 and #006. By allowing the facility to only report when discharging, the facility has reduced paperwork and reporting requirements. The facility was found not in compliance due to not meeting effluent limits. A summary of exceedances includes:

Outfall #002

- Cadmium effluent exceedances
- Copper effluent exceedances in January 2014, April through June 2013
- Lead effluent exceedances
- Oil and Grease effluent exceedances in February and April 2010
- TSS effluent exceedance December 2015
- Chronic Whole Effluent Toxicity (WET) failures in both *ceriodaphnia* and *pimephales*
- Zinc effluent exceedances above the stay values

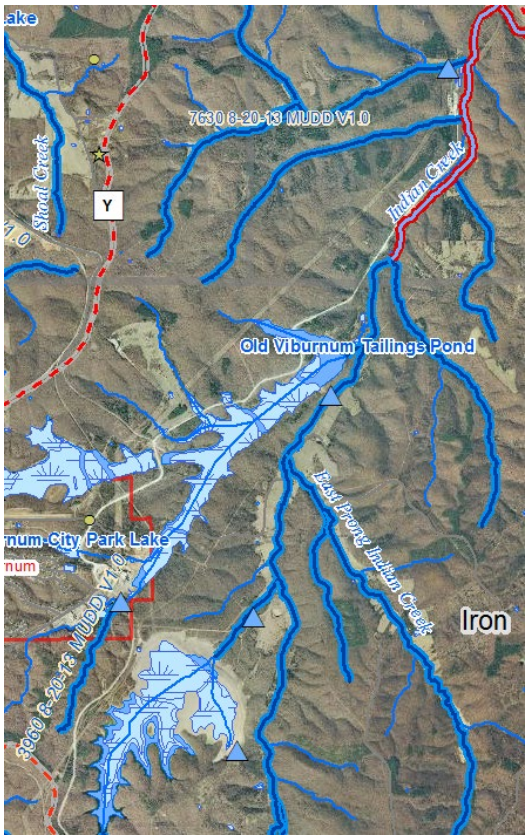
Outfall #004

- Cadmium effluent exceedances 2012-2015
- Stay values for lead and zinc
- August 2013 exceeded the lead stay value
- Oil and grease exceedances in August and October 2014

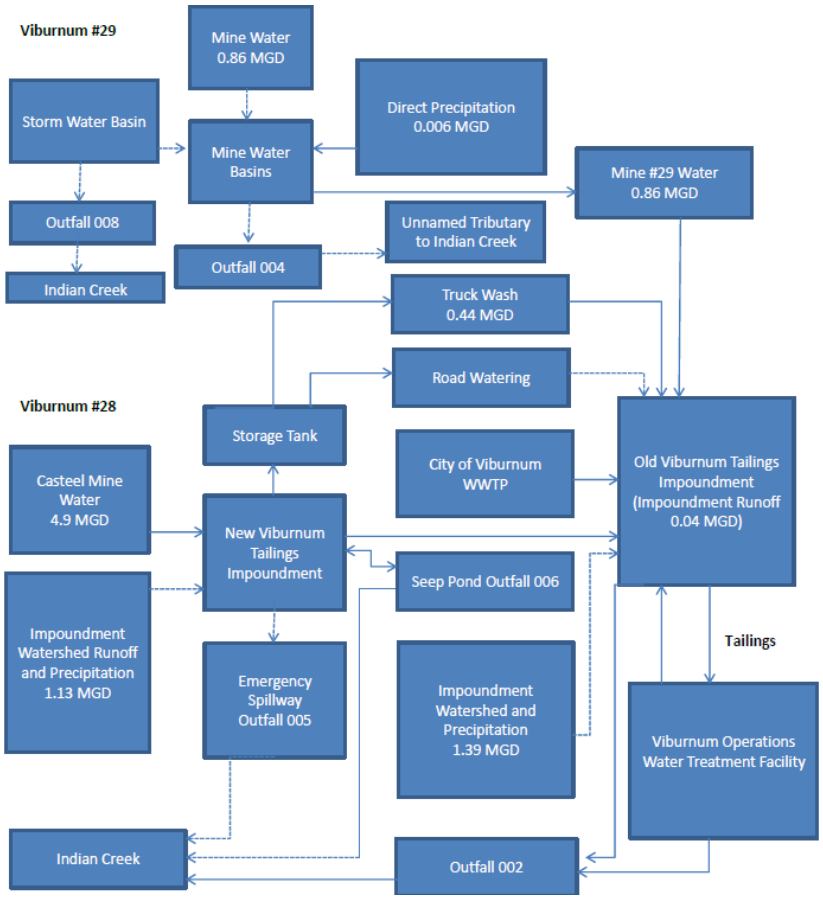
Outfall #006 discharged April and May 2011 and December 2015

- Exceedance of zinc, copper, and cadmium effluent limits when discharging

FACILITY MAP:



WATER FLOW DIAGRAM:



Part V. RECEIVING STREAM INFORMATION

RECEIVING WATER BODY'S WATER QUALITY:
Indian Creek and the Tributary to Indian Creek (C) (3960) are now classified whereas they were not classified in the previous permit, as EPA has approved the Department's new stream classifications.

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

- ✓ Applicable; Indian Creek is listed on the 2012 Missouri 303(d) list for lead(s) and zinc (s).
- ✓ This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). Once a TMDL is developed, the permit will be modified to include WLAs from the TMDL.

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

- ✓ Applicable: Indian Creek (1946) is associated with the 2010 EPA approved TMDL for dissolved lead and dissolved zinc.
- ✓ This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s). A wasteload allocation was developed in 2010 for lead and zinc; however in 2011 Doe Run underwent a metals translator study that was approved by the department's water quality group and the wasteload allocations in the TMDL do not reflect the results of the metals translator study. Please see the derivation and discussion section below for the calculation of effluent limits.

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

✓ As per Missouri's Effluent Regulations [10 CSR 20-7.015(1)(B)], the waters of the state are divided into the following seven categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

Missouri or Mississippi River: ☐
Lake or Reservoir: ☐
Losing: ☐
Metropolitan No-Discharge: ☐
Special Stream: ☐
Subsurface Water: ☐
All Other Waters: ☒

RECEIVING STREAMS TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES	DISTANCE TO CLASSIFIED SEGMENT	12-DIGIT HUC
#002	Indian Creek (8-20-13 MUDD V1.0)	C	3960	AQL, HPP, IRR, LWW, SCR, WBC(B)	0.0 mi	074140102-0302 Indian Creek-Courtois Creek
#004	Tributary to Indian Creek	C	3663	AQL, HPP, IRR, LWW, SCR, WBC(B)	0.0 mi	
#005	Tributary to Indian Creek				~0.20 mi	
#006	Tributary to Indian Creek (8-20-13 MUDD V1.0)	C	3960	AQL, HPP, IRR, LWW, SCR, WBC(B)	0.0 mi	
#008	Indian Creek	P	1946		~0.10 mi	

n/a not applicable
WBID = Waterbody IDentification: Missouri Use Designation Dataset 8-20-13 MUDD V1.0 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
* As per 10 CSR 20-7.031 Missouri Water Quality Standards, 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 to be maintained are in the receiving stream table 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.:
AQL = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is 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 AQL effluent limitations in 10 CSR 20-7.031 Table A 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 supporting swimming;
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;
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 Table A 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

RECEIVING STREAM LOW-FLOW VALUES:

OUTFALL	RECEIVING STREAM (C, P)	LOW-FLOW VALUES (CFS)		
		1Q10	7Q10	30Q10
#002, #004	Indian Creek & Tributary to Indian Creek (C)	0.0	0.0	0.1
#008	Indian Creek (P)	0.1	0.1	1.0

OUTFALLS #005 MIXING CONSIDERATIONS:

Mixing Zone: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)].

Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(b)].

OUTFALLS #002& #004 MIXING CONSIDERATIONS TABLE:

ZONE OF INITIAL DILUTION (CFS) (ACUTE) [10 CSR 20-7.031(5)(A)4.B…]			MIXING ZONE (CFS) (CHRONIC) [10 CSR 20-7.031(5)(A)4.B…]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0	0	n/a	0	0	0

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

Part VI. RATIONALE AND DERIVATION OF EFFLUENT LIMITATIONS & PERMIT CONDITIONS

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

✓ Not applicable; the facility does not discharge to a losing stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

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

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

- 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 contained a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4); however, there was no determination as to whether the discharges have reasonable potential to cause or contribute to excursion of those general water quality standards. Federal regulations 40 CFR 122.44(d)(1)(iii) requires that in instances were reasonable potential (RP) to cause or contribute to an exceedance of a water quality standard exists, a numeric limitation must be included in the permit. Rather than conducting the appropriate RP determination and establishing numeric effluent limitations for specific pollutant parameters, the previous permit simply placed the prohibitions in the permit. These conditions were removed from the permit. Appropriate reasonable potential determinations were conducted for each general criterion listed in 10 CSR 20-7.031(4) and effluent limitations were placed in the permit for those general criteria where it was determined the discharge had reasonable potential to cause or contribute to excursions of the general criteria. Specific effluent limitations were not included for those general criteria where it was determined that the discharges will not cause or contribute to excursions of general criteria. Removal of the prohibitions does not reduce the protections of the permit or allow for impairment of the receiving stream. The permit maintains sufficient effluent limitations, monitoring requirements and best management practices to protect water quality.

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

✓ Renewal no degradation proposed and no further review necessary. The Antidegradation Review was conducted in 2013 and public noticed May 17- June 29, 2013, with no comments received. The Antidegradation Review reflected the addition of flows from Mine No. 29, which is combined with the flows from Casteel before it is introduced into the CoMag treatment facility.

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

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

BIOSOLIDS & SEWAGE SLUDGE:
Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, 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 a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: http://extension.missouri.edu/main/DisplayCategory.aspx?C=74, items WQ422 through WQ449.
✓ Not applicable; this condition is not applicable to the permittee for this facility.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.
✓ Applicable. The permittee/facility is currently under enforcement action. The Doe Run Resource Corporation Multi-Media Consent Decree filed 12/21/2011 is available at http://www.epa.gov/region7/cleanup/doe_run/pdf/consent_decree.pdf

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

The Environmental Protection Agency has effluent limitation guidelines (ELG) at 40 CFR 440 *Ore Mining and Dressing Point Source Category* Subpart J (440.100 – 440.105) *Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory* which apply to this facility. However, Missouri water quality standards may be more stringent, and in those cases, are used.

EFFLUENT CHARACTERISTIC	CATEGORICAL EFFLUENT LIMITATIONS	
	MAXIMUM FOR ANY ONE DAY	AVERAGE OF DAILY VALUES FOR 30 CONSECUTIVE DAYS
	MILLIGRAMS PER LITER	MILLIGRAMS PER LITER
Cu	0.30	0.15
Zn	1.5	0.75
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05
pH	6.0 – 9.0	not averaged, 6.0 – 9.0
TSS	30.0	20.0

Narrative special condition #: Outfalls #005, and #006 only: 40 CFR 440.131(b) *Storm exemption for facilities permitted to discharge.* If, as a result of precipitation or snowmelt, a source with an allowable discharge under 40 CFR part 440 has an overflow or excess discharge of effluent which does not meet the limitations of 40 CFR part 440, the source may qualify for an exemption from such limitations with respect to such discharge if the following conditions are met:

(1) The facility is designed, constructed and maintained to contain the maximum volume of wastewater which would be generated by the facility during a 24-hour period without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event or treat the maximum flow associated with these volumes. In computing the maximum volume of wastewater which would result from a 10-year, 24-hour precipitation event, the facility must include the volume which would result from all areas contributing runoff to the individual treatment facility, *i.e.*, all runoff that is not diverted from the active mining area and runoff which is not diverted from the mill area.
(2) The facility takes all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow.
(3) The facility complies with the notification requirements of §122.60 (g) and (h). The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.
    - However, these exemptions will only apply (if granted) to TSS and total recoverable mercury as these are the only ELG limitations on outfalls #005, and #006. Any exceedances of water quality limitations will not be exempted.

GROUNDWATER MONITORING:
10 CSR 20-7.031(6) states water contaminants shall not cause or contribute to exceedance of Table A [groundwater limits in aquifers and caves] values listed as health advisory levels. Any substances not listed in Table A shall be limited so that drinking water, livestock watering, and irrigation uses are protected.

✓ The facility is monitoring groundwater for the Land Reclamation Program. The Water Protection Program has reviewed the data. No additional sampling required at this time.

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

✓ Not applicable. This condition is not applicable to the permittee for this facility. Industrial sludge, a Bevill-excluded material, from the wastewater treatment facility will be pumped to the tailings storage structure where it will be co-mingled with stormwater, process wastewater, and mine water. Water from these sources will be pumped to the wastewater treatment facility for treatment and eventual discharge through Outfall #002.

NUTRIENT MONITORING:
State regulations at 10 CSR 20-7.015 (9)(D)7. Require all facilities discharging greater than 0.1 MGD sample for nutrients. The rule also indicates facilities "that typically discharge nitrogen and phosphorus" are applicable indicating only facilities expected to discharge these pollutants need sample. The rule became effective as law on February 28, 2014. This facility is expected to discharge nutrients as detections occurred while sampling for permit renewal.
From Form C for Outfall #002:

PARAMETER	RESULT	POUNDS DISCHARGED	NUMBER OF ANALYSES
Ammonia as N	0.50 mg/L	48 lbs/day	1
Nitrate plus Nitrite as N	2.8 mg/L	269 lbs/day	1
Nitrogen, Total Organic	3.3 mg/L	317 lbs/day	1

The permit writer has determined ammonia as N, and nitrate plus nitrite as N were present in the discharge in sufficient amounts to warrant further scrutiny for Outfall #002.

Most commercial explosives contain organic nitrogenous compounds containing $–NO_2$, $-ONO_2$, and $–NHNO_2$ groups. The gaseous products of complete reaction are typically carbon dioxide, steam, and nitrogen. Nitrogen is atmospherically deposited throughout the mine, falls into mine water, and then brought to the surface through mine dewatering activities.

Nitrate and nitrite are part of the nitrogen cycle. The nitrate ion, NO_3^-, is the stable form of oxidized nitrogen and is not acutely toxic. The nitrite ion, NO_2^- , is relatively unstable but common intermediate form in nitrogen chemistry, and is toxic to humans when ingested. Waters containing nitrate can become toxic with nitrite by partial denitrification by bacteria e.g. during stagnation of oxygen-poor water. The NO_3^- salts of all common metals (e.g. $NaNO_3$ and KNO_3) are highly soluble in water. In natural waters, carbonates, sulfates, chlorides, phosphates, and nitrates affect metal speciation by forming ionizable salts. Insoluble carbonate formation is one of the most important processes for removing metals from solution.

The department's Nutrient Loss Reduction Strategy http://dnr.mo.gov/env/wpp/mnrsc/docs/nlrs-strategy-2014.pdf indicates facilities may be required to report each constituent of total nitrogen to reveal speciation. The facility discharged greater than 80 pounds of N in one day which is the proposed trigger for additional sampling (page 47).

Regardless of the nutrient strategy's objectives, the permit writer had determined this facility discharges nitrogenous compounds, as shown during expanded effluent sampling for permit renewal, therefore is subject to additional sampling requirements.

REASONABLE POTENTIAL ANALYSIS (RPA):
Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard. In accordance with [40 CFR Part 122.44(d)(1)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

✓ Not Applicable; an RPA was not conducted on the parameters of concern, as Doe Run established a new treatment plant on Outfall #002 for process wastewaters. Since the plant has only been operational since November 2016, not enough data points have been collected with the new treatment process to establish RPA for lead, zinc, and cadmium.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.
✓ Not applicable.

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

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(k), Best Management Practices (BMPs) must be used to control or abate the discharge of pollutants when: 1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) Authorized under section 402(p) of the CWA for the control of stormwater discharges; 3) Numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering waters of the state from a permitted facility. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to 1) identify sources of pollution or contamination, and 2) select and carry out actions which prevent or control the pollution of storm water discharges.

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

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

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

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

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

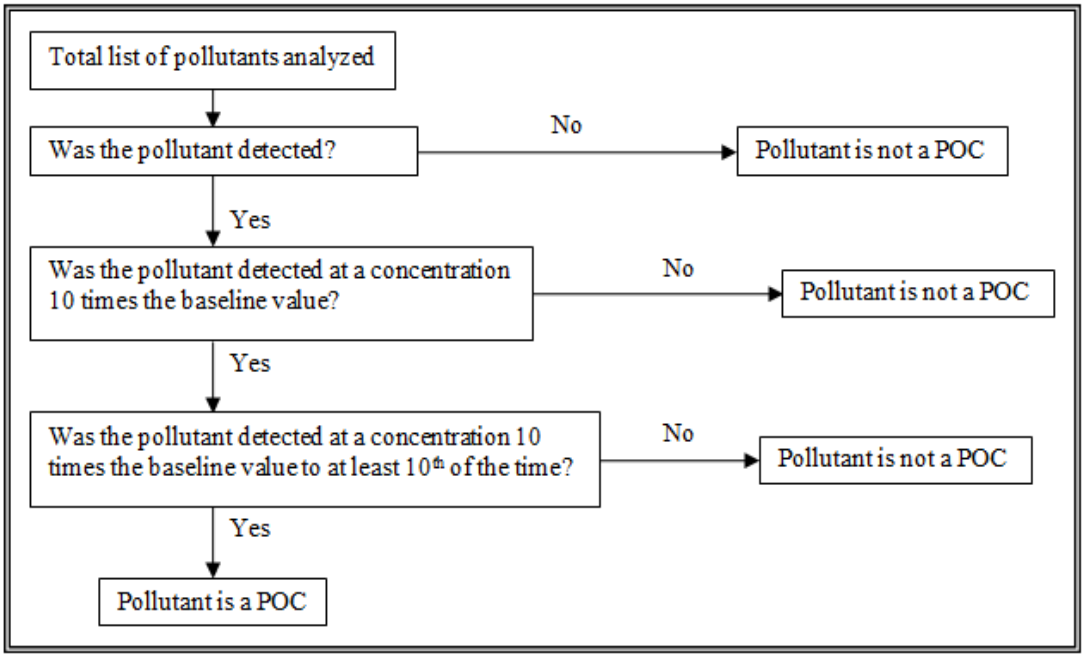
✓ Applicable; a SWPPP shall be developed and implemented for this facility.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS (TBEL):

One of the major strategies of the Clean Water Act (CWA) in making "reasonable further progress toward the national goal of eliminating the discharge of all pollutants" is to require effluent limitations based on the capabilities of the technologies available to control those discharges. Technology-based effluent limitations (TBELs) aim to prevent pollution by requiring a minimum level of effluent quality attainable using demonstrated technologies for reducing discharges of pollutants or pollution into the waters of the United States. TBELs are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and water quality-based effluent limitations (WQBELs). The NPDES regulations at Title 40 of the Code of Federal Regulations (CFR) 125.3(a) require NPDES permit writers to develop technology-based treatment requirements, consistent with CWA § 301(b) and § 402(a)(1), represent the minimum level of control that must be imposed in a permit. The regulation also indicates that permit writers must include in permits additional or more stringent effluent limitations and conditions, including those necessary to protect water quality. Regardless of the technology chosen to be the basis for limitations, the facility is not required to install the technology, only to meet the established TBEL.

Case-by-case TBELs are developed pursuant to CWA section 402(a)(1), which authorizes the administrator to issue a permit meeting either, 1) all applicable requirements developed under the authority of other sections of the CWA (e.g., technology-based treatment standards, water quality standards) or, 2) before taking the necessary implementing actions related to those requirements, "such conditions as the administrator determines are necessary to carry out the provisions of this Act." The regulation at §125.3(c)(2) specifically cite this section of the CWA, stating technology-based treatment requirements may be imposed in a permit "on a case-by-case basis under section 402(a)(1) of the Act, to the extent that EPA-promulgated effluent limitations are inapplicable." Further, §125.3(c)(3) indicates "where promulgated effluent limitations guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis to carry out the provisions of the act." When establishing case-by-case effluent limitations using best professional judgment, the permit writer should cite in the fact sheet or statement of basis both the approach used to develop the limitations, discussed below, and how the limitations carry out the intent and requirements of the CWA and the NPDES regulations.

Baselines to determine contaminants of concern are found in the *Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final* (EPA 821-R-00-020; August 2000). The baselines represent the treatable concentration of model technology which would effectually treat a pollutant. Chapter 6 Table 6-1 directs the permit writer to multiply the baseline by ten to determine if the parameter is a pollutant of concern. The following table determines the parameters for which a TBEL must be considered; baseline values are retrieved from chapter six.



When developing TBELs for industrial facilities, the permit writer must consider all applicable technology standards and requirements for all pollutants discharged above baseline level. Without applicable effluent guidelines for the discharge or pollutant, permit writers must identify any needed TBELs on a case-by-case basis, in accordance with the statutory factors specified in CWA sections 301(b)(2) and 304(b). The site-specific TBELs reflect the BPJ of the permit writer, taking into account the same statutory factors EPA would use in promulgating a national effluent guideline regulation, but they are applied to the circumstances relating to the applicant. The permit writer also should identify whether state laws or regulations govern TBELs and might require more stringent performance standards than those required by federal regulations. In some cases, a single permit could have TBELs based on effluent guidelines, best professional judgment, state law, and WQBELs based on water quality standards.

For BPT requirements (all pollutants)

- The age of equipment and facilities involved*
- The process(es) employed*
- The engineering aspects of the application of various types of control techniques*
- Process changes*
- Non-water quality environmental impact including energy requirements*
- The total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application

For BCT requirements (conventional pollutants)

- All items in the BPT requirements indicated by an asterisk (*) above
- The reasonableness of the relationship between the costs of attaining a reduction in effluent and the derived effluent reduction benefits
- The comparison of the cost and level of reduction of such pollutants from the discharge of POTWs to the cost and level of reduction of such pollutants from a class or category of industrial sources

For BAT requirements (toxic and non-conventional pollutants)

- All items in the BPT requirements indicated by an asterisk (*) above
- The cost of achieving such effluent reduction

Best Practicable Control Technology Currently Available (BPT) is the first level of technology-based effluent controls for direct dischargers and it applies to all types of pollutants (conventional, nonconventional, and toxic). The Federal Water Pollution Control Act (FWPCA) amendments of 1972 require when EPA establishes BPT standards, it must consider the industry-wide cost of implementing the technology in relation to the pollutant-reduction benefits. EPA also must consider the age of the equipment and facilities, the processes employed, process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the EPA Administrator deems appropriate [CWA §304(b)(1)(B)]. Traditionally, EPA establishes BPT effluent limitations on the basis of the average of the best performance of well-operated facilities in each industrial category or subcategory. Where existing performance is uniformly inadequate, BPT may reflect higher levels of control than currently in place in an industrial category if the agency determines the technology can be practically applied. See CWA sections 301(b)(1)(A) and 304(b)(1)(B). Because the EPA has not promulgated TBELs for the pollutants identified as POCs, the permit writer follows the same format to establish site-specific TBELs. Although the numerical effluent limitations and standards are based on specific processes or treatment technologies to control pollutant discharges, EPA does not require dischargers to use these technologies. Individual facilities may meet the numerical requirements using whatever types of treatment technologies, process changes, and waste management practices they choose.

For each parameter, group of parameters, or outfall treatment process, the facility will summarize the relevant factors below in facility-specific (or waste-stream specific) case-by-case TBEL development. The permittee will supply the required information to the department so a technology based effluent limitation can be applied in the permit if applicable.

✓ Not applicable; the permittee is subject to an ELG therefore those technology limitations will be used instead of an individual TBEL POC analysis.

VARIANCE:

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

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

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

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

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

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

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow
C_e = effluent concentration
Q_e = effluent flow

- Acute wasteload allocations designated as daily maximum limits (MDL) were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).
- Chronic wasteload allocations designated as monthly average limits (AML) were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ).
- Water quality based MDL and AML effluent limitations were calculated using methods and procedures outlined in USEPA's *Technical Support Document For Water Quality-based Toxics Control* or TSD EPA/505/2-90-001; 3/1991.
- Number of Samples "n": In accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance which should be, at a minimum, targeted to comply with the values dictated by the WLA. Therefore, it is recommended the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For total ammonia as nitrogen, "n = 30" is used.

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

✓ Applicable. The *Dissolved Metal Translator Study for Doe Run Facilities* dated January 18, 2011 is used to determine the dissolved:total ratio of hardness-dependent metals for this site for acute values.

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(4)], general criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

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

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

☒ Facility is a designated a Major
☒ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts
☒ Facility has Water Quality-Based Effluent Limitations for toxic substances (other than NH_3)
☒ Other – the facility has had toxic exceedances in the past

- Viburnum has quarterly chronic WET test requirements. The quarterly WET test remains until the facility consistently establishes the effluent is not causing in-stream toxicity.

Part VII. EFFLUENT LIMITS DETERMINATION

GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. The previous permit included the narrative criteria as specific prohibitions placed upon the discharge. These prohibitions were included in the permit absent any discussion of the discharge's reasonable potential to cause or contribute to an excursion of the criterion. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether the discharge has reasonable potential to cause, or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). In instances where reasonable potential exist the permit includes numeric limitations to address the reasonable potential. In instances where reasonable potential does not exist the permit includes monitoring of the discharges potential to impact the receiving stream's narrative criteria. Finally, all of the previous permit narrative criteria prohibitions have been removed from the permit given they are addressed by numeric limits where reasonable potential exists.

(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 outfalls# 002, #004 #005, #006, #008, there is no reasonable potential (RP) for putrescent bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls indicates putrescent wastewater would be discharged from the facility.
- For all outfalls, there is no RP for unsightly or harmful bottom deposits preventing full maintenance of beneficial uses because all outfalls have technology-based total suspended solids limits that control the discharge and prevent excursions above this general criterion.

(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, scum, and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls indicates oil 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 or preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls 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 or preventing full maintenance of beneficial uses because nothing disclosed by the permittee at renewal for these outfalls indicates offensive odor will be present in sufficient amounts to impair beneficial uses

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
- 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) There shall be no significant human health hazard from incidental contact with the water.
- 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.

(F) There shall be no acute toxicity to livestock or wildlife watering.
- 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.

(G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.
- For all outfalls, there is no RP for physical changes that would impair the natural biological community because nothing disclosed by the permittee at renewal for these outfalls indicates physical changes that would impair the natural biological community.
- For outfalls #002 and #004, there is RP for chemical changes that would impair the natural biological community because DMR data and sampling for permit renewal show RP for cadmium, copper, lead, and zinc therefore limits are imposed for these parameters; limitations on WET testing provide protection for any synergistic effects these metals may incur.
- For outfalls #005, #006, and #008, there is no RP for chemical changes that would impair the natural biological community because nothing disclosed by the permittee at renewal for these outfalls indicates chemical changes that would impair the natural biological community.
- For all outfalls, there is no RP for hydrologic changes that would impair the natural biological community because nothing disclosed by the permittee at renewal for these outfalls indicates physical changes that would impair the natural biological community.

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

OUTFALL #002– MAIN FACILITY OUTFALL

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	MONTHLY AVERAGE	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	1	*	*	SAME	ONCE/MONTH	ONCE/MONTH	TOTAL
PRECIPITATION	inches	6	*	*	ONCE/DAY	ONCE/MONTH	ONCE/MONTH	TOTAL
CONVENTIONAL								
pH ǂ	SU	1, 2	6.5 – 9.0	6.5 – 9.0	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TSS	mg/L	1	30	20	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
OIL & GREASE	Mg/L	1	15	10	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
METALS								
CADMIUM, TR	µg/L	1, 2, 3	0.9	0.5	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
COPPER, TR	µg/L	1, 2, 3	40.1	20	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
LEAD, TR	µg/L	1, 2, 3	12.4	6.2	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
MERCURY, TR	µg/L	1, 2, 3	2	1	SAME	ONCE/YEAR	ONCE/YEAR	GRAB
ZINC, TR	µg/L	1, 2, 3	227.7	113.5	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
NUTRIENTS								
NITROGEN, TOTAL N (TN)	mg/L	1	*		***	ONCE/QUARTER	ONCE/QUARTER	GRAB
WHOLE EFFLUENT TOXICITY								
CHRONIC WET	TUc	2, 3, 8	1.6		SAME	ONCE/QUARTER	ONCE/QUARTER	GRAB

* Monitoring requirement only
*** New parameter, not previously monitored
ǂ Facility will report minimum and maximum values
TR = total recoverable

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review/Policy
5. Water Quality Model
6. Best Professional Judgment
7. TMDL or Permit in lieu of TMDL
8. WET Test Policy

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

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

Precipitation

Monitoring only requirement; measuring the amount of precipitation [(10 CSR 20-6.200(2)(C)1.E(VI)] during an event is necessary to ensure adequate stormwater management exists at the site. Knowing the amount of potential stormwater runoff can provide the permittee a better understanding of specific control measure that should be employed to ensure protection of water quality. Because rainfall data is easily available online, the facility will only need to report the rainfall measurement from the day of sampling.

CONVENTIONAL:

pH

6.5 to 9.0 SU. Technology based effluent limitations at 40 CFR 440 are not protective of the receiving stream and it's uses. The Water Quality Standard [10 CSR 20-7.031(5)(E)], states water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU. No mixing zone is allowed due to the classification of the receiving stream, therefore the water quality standard must be met at the outfall.

Total Suspended Solids (TSS)
40 CFR 144 requires 30 mg/L daily maximum, 20 mg/L consecutive 30 day-daily average limits.

Oil and Grease
Conventional pollutant, [10 CSR 20-7.031, Table A]. Effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

METALS:

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness **= 206 mg/L.** Hardness was determined from data submitted with the Metals Translator Study completed by Doe Run. This hardness is based on the effluent flow from outfall 002, as this discharge is to a newly classified stream. Conversion factor values supplied by the permittee via a dissolved metals translator study, which provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department. Therefore the hardness of the stream is expected to closely resemble the effluent hardness from this facility.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.890	0.890
Copper	0.660	0.660
Lead	0.720	0.720
Zinc	0.950	0.950

Conversion factor values supplied by the permittee via a dissolved metals translator study (LimnoTech, 2011). This study provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department.

- **Cadmium, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a cadmium maximum daily concentration of 0.10 mg/L (100 µg/L) and a monthly average of 0.05 mg/L (50 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 0.41µg/L, Acute Criteria = 9.6 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 0.41/0.890 = 0.5 µg/L — WLA_c= 0.5 µg/L
Acute= 9.60/0.890 = 10.8 µg/L — WLA_a=10.8 µg/L

LTA_c= 0.5(0.527)= **0.3** µg/L — [CV= 0.6, 99th Percentile]
LTA_a= 10.8(0.321) = 3.5 µg/L — [CV= 0.6, 99th Percentile]
MDL=0.3(3.11) = 0.9 µg/L — [CV= 0.6, 99th Percentile]
AML= 0.3 (1.55) = 0.5 µg/L — [CV= 0.6, 95th Percentile, n= 4]

- **Copper, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a copper maximum daily concentration of 0.30 mg/L (300 µg/L) and a monthly average of 0.15 mg/L (150 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 16.6 µg/L, Acute Criteria = 26.5 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 16.6/0.660 = 25.2 µg/L — WLA_c= 25.2 µg/L
Acute= 26.5/0.660 = 40.2µg/L — WLA_a=40.2 µg/L

LTA_c= 25.2(0.527)= 13.3 µg/L — [CV= 0.6, 99th Percentile]
LTA_a= 40.2(0.321) = **12.9** µg/L — [CV= 0.6, 99th Percentile]
MDL=12.9(3.11) = 40.1 µg/L — [CV= 0.6, 99th Percentile]
AML= 12.9 (1.55) = 20.0 µg/L — [CV= 0.6, 95th Percentile, n= 4]

- **Lead, Total Recoverable** The categorical effluent limit in 40 CFR 440.102(b) requires a lead maximum daily concentration of 0.6 mg/L (600 µg/L) and a monthly average of 0.3 mg/L (300 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 5.5 µg/L, Acute Criteria = 140 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 5.5/0.720 = 7.6 µg/L — WLA_c= 7.6 µg/L
  Acute=140/0.720 = 194 µg/L — WLA_a=194 µg/L

  LTA_c= 7.6(0.527)= **4.0** µg/L [CV= 0.6, 99th Percentile]
  LTA_a= 194(0.321) = 62.3 µg/L [CV= 0.6, 99th Percentile]
  MDL=4.0(3.11) = 12.4 µg/L [CV= 0.6, 99th Percentile]
  AML= 4.0 (1.55) = 6.2 µg/L [CV= 0.6, 95th Percentile, n= 4]

- **Mercury, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a mercury maximum daily concentration of 0.002 mg/L (2.0 µg/L) and a monthly average of 0.001 mg/L (1.0 µg/L). Facility demonstrated during permit renewal that reasonable potential does not exist for exceedance of Water Quality Standards. This facility is subject to an Effluent Limit Guideline (ELG) for Mercury, and cannot certify that no Mercury exists in the wastewater; the categorical effluent limit must be applied.

- **Zinc, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a zinc maximum daily concentration of 1.0 mg/L (1000 µg/L) and a monthly average of 0.5 mg/L (500 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 217µg/L, Acute Criteria = 217 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 217/0.950 = 228 µg/L — WLA_c= 228 µg/L
  Acute= 217/0.950 = 228 µg/L — WLA_a=228 µg/L

  LTA_c= 228 (0.527)= 120.2 µg/L [CV= 0.6, 99th Percentile]
  LTA_a= 228 (0.321) = **73.2** µg/L [CV= 0.6, 99th Percentile]
  MDL=73.2(3.11) = 228 µg/L [CV= 0.6, 99th Percentile]
  AML= 73.2 (1.55) = 113.5 µg/L [CV= 0.6, 95th Percentile, n= 4]

NUTRIENTS:

Nitrogen, Total, as N (TN). Per 10 CSR 20-7.015(9)(D)7, nutrient monitoring shall be instituted on a quarterly basis for facilities with a design flow greater than 0.1 MGD. Sampling and reporting are quarterly.

WHOLE EFFLUENT TOXICITY (WET) TEST:

WET Test, Chronic. A chronic toxic unit limit of **1.6 TUc** applies; continued from previous permit. Because the treatment plant has been installed, the facility may choose what months to sample in. The facility will determine chronic toxicity according to permit conditions. Doe Run had requested a reduction in WET test frequency, however until the facility consistently establishes the effluent is not causing in-stream toxicity with the new treatment plant, the WET testing requirements remain quarterly.
Acute WET WLA_a = 0.3 WET $WLA_{a,c}$ = 10 ($0.3TU_a$) = $3.0TU_{a,c}$
Chronic WET WLA_c = 1.0

The acute WLA is converted to a long-term average concentration ($LTA_{a,c}$) using the following equation:
$LTA_{a,c}$ = 3.0 $TU_{a,c}$(0.321) = 0.963 [CV = 0.6, 99th Percentile]
LTA_c = 1.0 TU_c (0.527) = 0.527 [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a. To protect a waterbody from both acute and chronic effects, the more limiting of the calculated LTAa and LTA_c is used to derive the effluent limits. As shown above, the LTAc value was less than the $LTA_{a,c}$ value.

WET Limit 0.527 TU (3.11) = 1.6 TU [CV = 0.6, 99th Percentile]

Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Class C, Class P (with default mixing considerations) is 100%. The dilution series are 100%, 50%, 25%, 12.5%, & 6.25%. Retained from previous permit.

OUTFALL #004 – SETTLING BASIN

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	MONTHLY AVERAGE	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	1	*	*	SAME	ONCE/MONTH	ONCE/MONTH	TOTAL
PRECIPITATION	inches	6	*	*	ONCE/DAY	ONCE/MONTH	ONCE/MONTH	TOTAL
CONVENTIONAL								
pH ǂ	SU	1, 2	6.5 – 9.0	6.5 – 9.0	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
TSS	mg/L	1	30	20	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
OIL & GREASE	Mg/L	1	15	10	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
METALS								
CADMIUM, TR	µg/L	1, 2, 3	0.9	0.5	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
COPPER, TR	µg/L	1, 2, 3	99.5	49.6	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
LEAD, TR	µg/L	1, 2, 3	23	11.5	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
MERCURY, TR	µg/L	1, 2, 3	2	1	SAME	ONCE/YEAR	ONCE/YEAR	GRAB
ZINC, TR	µg/L	1, 2, 3	322.5	160.7	SAME	ONCE/MONTH	ONCE/MONTH	GRAB
WHOLE EFFLUENT TOXICITY								
CHRONIC WET	TUc	2, 3, 8	1.6		SAME	ONCE/QUARTER	ONCE/QUARTER	GRAB

* Monitoring requirement only
*** New parameter, not previously monitored
ǂ Facility will report minimum and maximum values
TR = total recoverable

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review/Policy
5. Water Quality Model
6. Best Professional Judgment
7. TMDL or Permit in lieu of TMDL
8. WET Test Policy

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

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

Precipitation. Monitoring only requirement; measuring the amount of precipitation [(10 CSR 20-6.200(2)(C)1.E(VI)] during an event is necessary to ensure adequate stormwater management exists at the site. Knowing the amount of potential stormwater runoff can provide the permittee a better understanding of specific control measure that should be employed to ensure protection of water quality. Because rainfall data is easily available online, the facility will only need to report the rainfall measurement from the day of sampling.

CONVENTIONAL:

pH. 6.5 to 9.0 SU. Technology based effluent limitations at 40 CFR 440 are not protective of the receiving stream and it's uses. The Water Quality Standard [10 CSR 20-7.031(5)(E)], states water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU. No mixing zone is allowed due to the classification of the receiving stream, therefore the water quality standard must be met at the outfall.

Total Suspended Solids (TSS). 40 CFR 144 requires 30 mg/L daily maximum, 20 mg/L consecutive 30 day-daily average limits.

Oil and Grease. Conventional pollutant, [10 CSR 20-7.031, Table A]. Effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

METALS:

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = **284 mg/L.** Hardness was determined from data submitted with the Metals Translator Study completed by Doe Run. This hardness is based on the instream hardness for Indian Creek below this facility, is used in calculating water quality criteria. Conversion factor values supplied by the permittee via a dissolved metals translator study, which provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department. Therefore the hardness of the stream is expected to closely resemble the effluent hardness from this facility.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.850	0.850
Copper	0.360	0.360
Lead	0.550	0.550
Zinc	0.880	0.880

Conversion factor values supplied by the permittee via a dissolved metals translator study (LimnoTech, 2011). This study provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department.

- **Cadmium, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a cadmium maximum daily concentration of 0.10 mg/L (100 µg/L) and a monthly average of 0.05 mg/L (50 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 0.51µg/L, Acute Criteria = 13.11 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 0.51/0.850= 0.6 µg/L — WLA_c= 0.6 µg/L
  Acute= 13.11/0.850= 15.4 µg/L — WLA_a=15.4 µg/L

  LTA_c= 0.6(0.527)= **0.3** µg/L [CV= 0.6, 99th Percentile]
  LTA_a= 15.4(0.321) = 4.9 µg/L [CV= 0.6, 99th Percentile]
  MDL=0.3(3.11) = 0.9 µg/L [CV= 0.6, 99th Percentile]
  AML= 0.3 (1.55) = 0.5 µg/L [CV= 0.6, 95th Percentile, n= 4]

- **Copper, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a copper maximum daily concentration of 0.30 mg/L (300 µg/L) and a monthly average of 0.15 mg/L (150 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 21.9 µg/L, Acute Criteria = 35.9 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 21.9/0.360= 60.8 µg/L — WLA_c= 60.8 µg/L
  Acute= 35.9/0.360 = 99.7µg/L — WLA_a=99.7 µg/L

  LTA_c= 60.8(0.527)= 32.0 µg/L [CV= 0.6, 99th Percentile]
  LTA_a= 99.7(0.321) = **32.0** µg/L [CV= 0.6, 99th Percentile]
  MDL=32(3.11) = 99.5 µg/L [CV= 0.6, 99th Percentile]
  AML= 32 (1.55) = 49.6 µg/L [CV= 0.6, 95th Percentile, n= 4]

- **Lead, Total Recoverable** The categorical effluent limit in 40 CFR 440.102(b) requires a lead maximum daily concentration of 0.6 mg/L (600 µg/L) and a monthly average of 0.3 mg/L (300 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 7.7 µg/L, Acute Criteria = 197 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 7.7/0.550 = 14.0 µg/L — WLA_c = 14.0 µg/L
  Acute= 197/0.550 = 358 µg/L — WLA_a = 358 µg/L

  LTA_c= 14(0.527)= **7.4** µg/L [CV= 0.6, 99th Percentile]
  LTA_a= 358(0.321) = 114.9 µg/L [CV= 0.6, 99th Percentile]
  MDL=7.4(3.11) = 23.0 µg/L [CV= 0.6, 99th Percentile]
  AML= 7.4 (1.55) = 11.5 µg/L [CV= 0.6, 95th Percentile, n= 4]

- **Mercury, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a mercury maximum daily concentration of 0.002 mg/L (2.0 µg/L) and a monthly average of 0.001 mg/L (1.0 µg/L). Facility demonstrated during permit renewal that reasonable potential does not exist for exceedance of Water Quality Standards. This facility is subject to an Effluent Limit Guideline (ELG) for Mercury, and cannot certify that no Mercury exists in the wastewater; the categorical effluent limit must be applied.

- **Zinc, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a zinc maximum daily concentration of 1.0 mg/L (1000 µg/L) and a monthly average of 0.5 mg/L (500 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 284 µg/L, Acute Criteria = 284 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 284/0.880 = 323 µg/L — WLA_c= 323 µg/L
  Acute= 284/0.880 = 323 µg/L — WLA_a = 323 µg/L

  LTA_c= 323 (0.527)= 170.2 µg/L — [CV= 0.6, 99th Percentile]
  LTA_a= 323 (0.321) = **103.7** µg/L — [CV= 0.6, 99th Percentile]
  MDL=103.7(3.11) = 323 µg/L — [CV= 0.6, 99th Percentile]
  AML= 103.7 (1.55) = 160.7 µg/L — [CV= 0.6, 95th Percentile, n= 4]

WHOLE EFFLUENT TOXICITY (WET) TEST:

WET Test, Chronic. A chronic toxic unit limit of **1.6 TUc** applies; continued from previous permit. Because the treatment plant has been installed, the facility may choose what months to sample in. The facility will determine chronic toxicity according to permit conditions. Doe Run had requested a reduction in WET test frequency, however until the facility consistently establishes the effluent is not causing in-stream toxicity with the new treatment plant, the WET testing requirements remain quarterly.

Acute WET WLA_a = 0.3 — WET $WLA_{a,c}$ = 10 ($0.3TU_a$) = $3.0TU_{a,c}$
Chronic WET WLA_c = 1.0

The acute WLA is converted to a long-term average concentration ($LTA_{a,c}$) using the following equation:
$LTA_{a,c}$ = 3.0 $TU_{a,c}$(0.321) = 0.963 — [CV = 0.6, 99th Percentile]
LTA_c = 1.0 TU_c (0.527) = 0.527 — [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a. To protect a waterbody from both acute and chronic effects, the more limiting of the calculated LTAa and LTA_c is used to derive the effluent limits. As shown above, the LTAc value was less than the $LTA_{a,c}$ value.

WET Limit 0.527 TU (3.11) = 1.6 TU — [CV = 0.6, 99th Percentile]

Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default mixing considerations) is 100%. The dilution series are 100%, 50%, 25%, 12.5%, & 6.25%. Retained from previous permit.

OUTFALLS #005 &#006-NO DISCHARGE TAILINGS BASINS

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	MONTHLY AVERAGE	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	1	*	*	SAME	ONCE/DAY	NOTE 1	ESTIMATE
PRECIPITATION	INCHES	6	*	*	SAME	ONCE/DAY	NOTE 1	MEASURE
CONVENTIONAL								
pH	SU	1	6.5-9.0	6.5-9.0	6.5 – 9.0	ONCE/DAY	NOTE 1	GRAB
TSS	MG/L	1	30	20	30, 20	ONCE/DAY	NOTE 1	GRAB
METALS								
CADMIUM, TR	µg/L	1	0.7	0.3	0.7, 0.3	ONCE/DAY	NOTE 1	GRAB
COPPER, TR	µg/L	1	20.8	10.4	20.8, 10.4	ONCE/DAY	NOTE 1	GRAB
LEAD, TR	µg/L	1	10.9	5.4	10.9, 5.4	ONCE/DAY	NOTE 1	GRAB
MERCURY, TR	µg/L	1	2	1	2, 1	ONCE/DAY	NOTE 1	GRAB
ZINC, TR	µg/L	1	195.0	97.0	195, 97	ONCE/DAY	NOTE 1	GRAB

* Monitoring requirement only
*** New parameter, not previously monitored
TR total recoverable
Once/day means once per day when discharging. No report required if no discharge in the month.
Note 1 The eDMR system will accept values for the previous month. This is conditional reporting therefore no report is due if no discharge occurred.

Basis for Limitations Codes:
1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review/Policy
5. Water Quality Model
6. Best Professional Judgment
7. TMDL or Permit in lieu of TMDL
8. WET Test Policy

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

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

Precipitation. Monitoring only requirement; measuring the amount of precipitation [(10 CSR 20-6.200(2)(C)1.E(VI)] during an overflow event is necessary to ensure adequate stormwater management exists at the site. Knowing the amount of potential stormwater runoff can provide the permittee a better understanding of specific control measure that should be employed to ensure protection of water quality. Because rainfall data is easily available online, the facility will only need to report the rainfall measurement from the day of sampling.

CONVENTIONAL:

pH. 6.5 to 9.0 SU. The Water Quality Standard at 10 CSR 20-7.031(5)(E) states water contaminants shall not cause pH to be outside the range of 6.5 to 9.0 standard pH units. Same as previous permit. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

Total Suspended Solids. Categorical effluent limitations: 30 mg/L daily maximum, 20 mg/L monthly average. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

METALS:

Cadmium, Total Recoverable. Previous permit limits 0.7 µg/L daily maximum, 0.3 µg/L monthly average; no data to perform RPA therefore limits continued. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

Copper, Total Recoverable. Previous permit limits 20.8 µg/L daily maximum, 10.4 µg/L monthly average; no data to perform RPA therefore limits continued. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

Lead, Total Recoverable. Previous permit limits 10.9 µg/L daily maximum, 5.4 µg/L monthly average; no data to perform RPA therefore limits continued. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

Mercury, Total Recoverable. Previous permit limits 2 µg/L daily maximum, 1 µg/L monthly average; no data to perform RPA therefore limits continued. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

Zinc, Total Recoverable. Previous permit limits 195.0 µg/L daily maximum, 97.0 µg/L monthly average; no data to perform RPA therefore limits continued. Monthly sampling and reporting changed to one sample per day per discharge; reporting conditional upon discharge.

OUTFALLS #008-NO DISCHARGE BASIN

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	MONTHLY AVERAGE MAX	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
PHYSICAL								
FLOW	MGD	1	*		NEW	CONDITIONAL	CONDITIONAL	24 HR TOT
PRECIPITATION	INCHES	6	*		NEW	CONDITIONAL	CONDITIONAL	MEASURE
CONVENTIONAL								
PH	SU	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB
TOTAL SUSPENDED SOLIDS	MG/L	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB
METALS								
CADMIUM, TOTAL RECOVER.	µg/L	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB
COPPER, TOTAL RECOVER.	µg/L	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB
LEAD, TOTAL RECOVERABLE	µg/L	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB
MERCURY, TOTAL RECOV.	µg/L	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB
ZINC, TOTAL RECOVERABLE	µg/L	1	*		NEW	CONDITIONAL	CONDITIONAL	GRAB

Conditional monitoring requires the discharge results must be reported within 30 calendar days from date of discharge. The eDMR system will create an "unscheduled" limit set each month. The facility need only enter data if a discharge occurs. Freeboard must be reported monthly.

* - Monitoring requirement only

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review/Policy
5. Water Quality Model
6. Best Professional Judgment
7. TMDL or Permit in lieu of TMDL
8. WET Test Policy

DERIVATION AND DISCUSSION OF LIMITS:

PHYSICAL:

Flow

In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification. Permittee will record total volume of wastewater discharged from the outfall each day of discharge.

Precipitation
Monitoring only requirement; measuring the amount of precipitation [(10 CSR 20-6.200(2)(C)1.E(VI)] during an overflow event is necessary to ensure adequate stormwater management exists at the site. Knowing the amount of potential stormwater runoff can provide the permittee a better understanding of specific control measure that should be employed to ensure protection of water quality. Because rainfall data is easily available online, the facility will only need to report the rainfall measurement from the day of discharge. The SWPPP may have different requirements. New reporting requirement this permit; only required at time of discharge.

CONVENTIONAL:

pH
Monitoring only to determine reasonable potential to exceed water quality standards. This basin is designed not to discharge, should the basin discharge, the discharge results will be compared with WQS to assess RP.

Total Suspended Solids (TSS)
Monitoring only to determine reasonable potential to cause violations of general water quality criteria. This basin is designed not to discharge, should the basin discharge, the discharge results will be assessed and a reasonable potential determination will be made for this parameter.

METALS:

Cadmium, Total Recoverable
Monitoring only to determine reasonable potential to exceed water quality standards. This basin is designed not to discharge, should the basin discharge, the discharge results will be compared with WQS to assess RP.

Copper, Total Recoverable
Monitoring only to determine reasonable potential to exceed water quality standards. This basin is designed not to discharge, should the basin discharge, the discharge results will be compared with WQS to assess RP.

Lead, Total Recoverable
Monitoring only to determine reasonable potential to exceed water quality standards. This basin is designed not to discharge, should the basin discharge, the discharge results will be compared with WQS to assess RP.

Mercury, Total Recoverable
Monitoring only to determine reasonable potential to exceed water quality standards. This basin is designed not to discharge, should the basin discharge, the discharge results will be compared with WQS to assess RP.

Zinc, Total Recoverable
Monitoring only to determine reasonable potential to exceed water quality standards. This basin is designed not to discharge, should the basin discharge, the discharge results will be compared with WQS to assess RP.

Part VIII. SAMPLING AND REPORTING REQUIREMENTS:

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

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

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

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

SAMPLING FREQUENCY JUSTIFICATION:

- Sampling and Reporting Frequency was retained from previous permit. WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits/ WET Testing for Compliance Bio-monitoring*. Quarterly monitoring continued from previous permit.

SAMPLING TYPE JUSTIFICATION:

Grab samples are appropriate for this type of continuous discharge from outfall #002 &#004; grab samples are also appropriate for overflows from emergency spillways (outfall #005, #006, and #008). This sampling type was continued from the previous permit. For further information on sampling and testing methods see 10 CSR 20-7.015(9)(D)2.

SUFFICIENTLY SENSITIVE ANALYTICAL METHODS:

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

Part IX. 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 that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than three years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

✓ *This permit will not be synchronized at this time.*

PUBLIC NOTICE:

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

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

☒ - The Public Notice period for this operating permit was from August 11, 2017 to September 11, 2017. Responses to the Public Notice of this operating permit did not warrant the modification of effluent limits and/or the terms and conditions of this permit.

DATE OF FACT SHEET: APRIL 18, 2017

COMPLETED BY:

LEASUE MEYERS, EI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
leasue.meyers@dnr.mo.gov

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

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

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

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

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

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

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

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

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

Section B – Reporting Requirements

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

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

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.

c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

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

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

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

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

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

Section C – Bypass/Upset Requirements

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

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

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

Section D – Administrative Requirements

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
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 – _____, 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 – 0000086 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	
The Doe Run Company, Viburnum Operations		573-244-8650	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
P.O. Box 500	Viburnum	MO	65566

3. OWNER

NAME		TELEPHONE NUMBER WITH AREA CODE	
The Doe Run Resources Corporation d/b/a The Doe Run Company		314-453-7100	
EMAIL ADDRESS			
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
1801 Park 270 Drive, #300	St. Louis	MO	63146

4. CONTINUING AUTHORITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
The Doe Run Resources Corporation d/b/a The Doe Run Company		314-453-7100	
EMAIL ADDRESS			
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
1801 Park 270 Drive, #300	St. Louis	MO	63146

5. OPERATOR CERTIFICATION

NAME	CERTIFICATE NUMBER	TELEPHONE NUMBER WITH AREA CODE	
The Doe Run Company	N/A		
ADDRESS (MAILING)	CITY	STATE	ZIP CODE
P.O. Box 500	Viburnum	MO	65566

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
Kevin James	Environmental Manager	573-244-8650
E-MAIL ADDRESS		
kjames@doerun.com		

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

NAME			
ADDRESS	CITY	STATE	ZIP CODE

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 ____¼ ____¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

002 NW ¼ SW ¼ Sec 07 T 35 R 01 Iron ____ County
UTM Coordinates Easting (X): 669361 Northing (Y): 4180820

003 ____¼ ____¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

004 NE ¼ SE ¼ Sec 7 T 35 R 1 Washington County
UTM Coordinates Easting (X): 669361 Northing (Y): 4180820

8.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.
Primary SIC 1031 and NAICS 212231 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
Kevin James, Environmental Manager	573-244-8650
SIGNATURE 	DATE SIGNED 02-09-2020

BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.

INSTRUCTIONS FOR COMPLETING FORM A - APPLICATION FOR NONDOMESTIC PERMIT

1. Check which option is applicable. **Do not check more than one item.** Nondomestic permit refers to permits issued by the Department of Natural Resources' Water Protection Program for all **nondomestic** wastewater treatment facilities, including all industry, stormwater, and Class IA Concentrated Animal Feeding Operations (CAFO). **This includes all nondomestic wastewater treatment facilities that incorporate domestic wastewater into the operating permit.**

   For some new or modified permits, a construction permit is required prior to beginning construction at the facility. For other permits, an exemption is provided from construction permit requirements. Please review the requirements at http://dnr.mo.gov/env/wpp/permits/ww-construction-permitting.htm. If the facility is for wastewater treatment and is designed for greater than 22,500 gallons per day, the engineering report must be submitted and approved prior to submittal of the application, fee, plans, and specifications. A summary of design data must be submitted with the engineering plans and specifications.

   For new wastewater facilities, some wastewater permit modifications, and some permit renewals with proposed increase in design wastewater flow, an antidegradation review may be required. Please visit https://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm for more information

2. Facility - Provide the name by which this facility is known locally. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Also include the street address or location of the facility. If the facility lacks a street name or route number, give the names of the closest intersection, highway, county road, etc.

3. Owner - Provide the legal name and address of owner or company.

4. Continuing Authority – A continuing authority is a company, business, entity, or person(s) operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf. A continuing authority's name must be listed **exactly** as it appears on the Missouri Secretary of State's (SoS's) webpage: https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0, unless the continuing authority is an individual(s), government, or otherwise not required to register with the SoS.

5. Operator - Provide the name, certificate number, mailing address and telephone number of the person operating the facility, if required by regulation (10 CSR 20-9.020(2)). Most industrial facilities will not be required to have a certified wastewater operator.

6. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility, with the facts reported in this application, and who can be contacted by the department, if necessary. This person will need to be available to respond to emails which will include pre-public notice drafts of permits.

7. Please provide the name and address of the first downstream landowner, different from that of the permitted facility, through whose property the discharge will flow. Also, please indicate the location on the map. For discharges that leave the permitted facility and flow under a road or highway, or along the right-of-way, the downstream property owner is the landowner that the discharge flows to after leaving the right-of-way. For no discharge facilities, provide this information for the location where discharge would flow if there was one. For land application sites, include the owners of the land application sites and all adjacent landowners.

8.1 An outfall is the point at which wastewater or stormwater is discharged. Outfalls should be given in terms of the legal description of the facility. Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers a GPS receiver is used at the outfall pipe and the displayed coordinates submitted. If access to a GPS receiver is not available, please use a mapping system to approximate the coordinates.

8.2 List only your primary Standard Industrial Classification (SIC), and North American Industry Classification System (NAICS) code for each outfall. The SIC system was devised by the U.S. Office of Management and Budget to cover all economic activities. To find the correct SIC code, an applicant may check his or her unemployment insurance forms or contact the Missouri Division of Employment Security, 573-751-3215. The primary SIC code is that of the operation that generates the most revenue. If this information is not available, the number of employees or, secondly, production rate may be used to determine your SIC code. Additional information for Standard Industrial Codes can be found at www.osha.gov/pls/imis/sicsearch.html and for the North American Industry Classification System at www.census.gov/naics or contact the appropriate Department of Natural Resources regional office.

INSTRUCTIONS FOR COMPLETING FORM A - APPLICATION FOR NONDOMESTIC PERMIT (CONTINUED)

9. If you answer yes to A, B, C, D, or E, then you must complete and file the supplementary form(s) indicated. 40 CFR 122.21(f) and (g) requires the facility to submit the information requested herein. For 9.E., please include all permits or approvals, including construction, issued under the Hazardous Waste Management Program (RCRA), the Safe Drinking Water Act, Clean Air Act, or any other permits issued under the Clean Water Act.

   A U.S. Geological Survey 1" = 2,000' scale map must be submitted with the permit application showing all outfalls, the receiving stream and the location of the downstream property owners. This type of map can be obtained from the Missouri Department of Natural Resources' Geological Survey in Rolla at 573-368-2100 or various online mapping applications.

10. Electronic Discharge Monitoring Report (eDMR) Submission System – Visit the eDMR site at http://dnr.mo.gov/env/wpp/edmr.htm and click on the "Facility Participation Package" link. The eDMR Permit Holder and Certifier Registration Form and information about the eDMR system can be found in the Facility Participation Package.

    Waivers from electronic reporting may be granted by the Department per 40 CFR 127.15 under certain, special circumstances. A written request must be submitted to the Department for approval. Waivers may be granted to facilities owned or operated by:
    A. Members of religious communities that choose not to use certain technologies or
    B. Permittees located in areas with limited broadband access. The National Telecommunications and Information Administration (NTIA) in collaboration with the Federal Communications Commission (FCC) have created a broadband internet availability map: http://www.broadbandmap.gov/. Please contact the department if you need assistance.

11. Please visit https://dnr.mo.gov/pubs/pub2564.htm for permit fees. This form must be submitted with the application fee if requesting a new permit, permit modification, or permit transfer.

    Fee schedules are listed in regulation at 10 CSR 20-6.011, https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf.

    Incomplete permit applications and/or related engineering documents will be returned by the department if they are not completed in the time frame established in a comment letter from the department to the owner. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

12. Certification/Signature - All applications must be signed as follows and the signature must be **original**:
    A. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
    B. For a partnership or sole proprietorship, by a general partner or the proprietor.
    C. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

MAIL COMPLETED FORM AND FEES TO:
Missouri Department Of Natural Resources Water Protection Program Water Pollution Control Branch ATTN: Operating Permits Section P.O. BOX 176 JEFFERSON CITY, MO 65102-0176

If there are any questions concerning this form, contact the Department of Natural Resources' Water Protection Program, Operating Permits Section at 800-361-4827 or 573-522-4502.

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

Doe Run Company, Viburnum Operations

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

MO-0000086

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.

Mining and milling of lead, zinc, and copper ores to produce concentrates.

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
002	Mine/Tailings/Storm Water	11.52 (17.3) MGD	Physical Settling,	1-U, 1-G, 2-K
			pH adjustment,Coagulation,	2-D, 2-C
			Metals precipitation,	
			Flocculation, and Clarification	
004	Mine/Storm Water	0 (5.3) MGD	Physical Settling	1-U
005	Mine/Tailings/Storm Water	0 (0) MGD	Physical Settling	1-U
006	Mine/Tailings/Storm Water	0 (0) MGD	Physical Settling	1-U
008	Storm Water	0 (0) MGD	Physical Settling	1-U

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 440 Subpart(s) J ☐ No *(go to section 2.5)*

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
Refer to Multi-media Consent Decree: U.S. and State of MO vs. Doe Run		Construction complete, but CD not closed.		

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.

N/A

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)
None from Table B			

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.

Chronic WET testing duration, Pimephales promelas and Ceridoaphnia dubia. (Testing results 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)*
Pace Analytical Services, Inc.	808 West McKay Frontenac, KS 66763	620-235-0003	WET Testing
Pace Analytical Services, Inc.	9608 Loiret Blvd. Lenexa, KS 66219	913-599-5665	Chemical Analysis

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
N/A			All stormwater with industrial exposure goes through a permitted outfall

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

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
Kevin James, Environmental Manager	573-244-8650
SIGNATURE (SEE INSTRUCTIONS) 	DATE SIGNED 02-09-2020