

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-0133221

Owner: The Doe Run Resources Corporation d/b/a The Doe Run Company
Address: P.O. Box 500, #35 Iron County Road #1, Viburnum, MO 65566

Continuing Authority: Same as above
Address: Same as above

Facility Name: Doe Run, Indian Creek Mine Tailings Site
Address: 8.5 miles NW of Potosi, Highway 185, Potosi, MO 63664

Legal Description: See Page 2
Latitude/Longitude: See Page 2

Receiving Stream: Unnamed tributary to Goose Creek (U)
First Classified Stream and ID: Goose Creek (C)(2010)
USGS Basin & Sub-watershed No.: (07140102 - 060002)

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

FACILITY DESCRIPTION

See Page 2

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

February 13, 2009 August 19, 2011
Effective Date Revised Date

Sara Parker Pauley, Director, Department of Natural Resources

February 12, 2014
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall 001 – This outfall transferred to MO-0136654

Outfall 002 – Stormwater discharges only – SIC #1031

Storm water runoff from former mine site

Legal Description: SW ¼, Sec. 27, T39N, R1E, Washington County

UTM Coordinates: X=682559, Y=4216707

Flow is dependent on precipitation

This facility is an inactive lead mine/mill with residual mine tailings on site exposed to stormwater. Land disturbance is authorized by this permit, including but not limited to earth moving associated with timber harvest, reclamation, excavation and remediation activities. The topography and grading of the area is such that all storm water is routed to outfall 002.

This permit authorizes a large area of contiguous property owned by Doe Run. A parcel of land within the property, authorized by MO-0136654, is operated by the U.S. EPA who is the continuing authority. The land subject to MO-0136654 receives soil from off site remediation projects for properties contaminated by activities associated with lead mining, milling and/or smelting. The legal description for the entire area, including property operated by U.S. EPA under MO-0136654, includes:

SW ¼, Sec 28, T39N, R1E

SE ¼, Sec. 27, T39N, R1E

E ½, Sec. 33, T39N, R1E

W ½, Sec. 34, T39N, R1E

S ½, Sec. 34, T39N, R1E

Sec. 3, T38N, R1E

Sec. 4, T38N, R1E

NW ¼, Sec. 9, T38N, R1E

N ½, Sec. 10, T38N, R1E

W ½, Sec. 2, T38N, R1E

| | | | | | PAGE NUMBER 3 of 9 | |
|--|------------|----------------------------|----------------|-----------------|--------------------------|-----------------|
| A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | PERMIT NUMBER MO-0133221 | |
| The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: | | | | | | |
| OUTFALL NUMBER AND EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| <u>Outfall #002</u> | | | | | | |
| Flow | MGD | * | | * | once/quarter*** | 24 hr. estimate |
| Settleable Solids | ml/L/hr | 2.5 | | * | once/quarter*** | grab |
| pH – Units | SU | ** | | ** | once/quarter*** | grab |
| Hardness, Total | mg/L | * | | * | once/quarter*** | grab |
| Cadmium, Total Recoverable | µg/L | 10.6 | | 5.3 | once/quarter*** | grab |
| Lead, Total Recoverable | µg/L | 210.5 | | 104.9 | once/quarter*** | grab |
| Zinc, Total Recoverable | µg/L | 225.5 | | 112.4 | once/quarter*** | grab |
| Copper, Total Recoverable | µg/L | * | | * | once/quarter*** | grab |
| MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE April 28, 2009. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS. | | | | | | |
| Whole Effluent Toxicity (WET) Test | % Survival | See Special Conditions | | | once/year | grab |
| MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2012</u> . | | | | | | |
| B. STANDARD CONDITIONS | | | | | | |
| IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN. | | | | | | |

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- *** See table below for quarterly sampling

| | |
|---|----------------|
| Sample discharge at least once for the months of: | Report is due: |
| January, February, March (1st Quarter) | April 28 |
| April, May, June (2nd Quarter) | July 28 |
| July, August, September (3rd Quarter) | October 28 |
| October, November, December (4th Quarter) | January 28 |

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.
2. All outfalls must be clearly marked in the field.
3. Changes in Discharges of Toxic Substances

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

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
 - (c) That the effluent limit established in part A of the permit will be exceeded.
5. Report as no-discharge when a discharge does not occur during the report period.
 6. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

C. SPECIAL CONDITIONS (continued)

7. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP applies to all of the property owned by Doe Run, except the portion described in MO-0136654. The SWPPP must be kept on-site when Doe Run personnel are on-site, actively performing an industrial activity, and should not be sent to the department unless specifically requested. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

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

The SWPPP must include the following:

- (a) An assessment of all storm water discharges associated with all activities conducted on the property, including land disturbance, excavation, vehicle maintenance, tree harvesting, fuel or lubricant storage, etc. This must include a list of potential contaminants.
 - (b) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water. Minimum BMPs are listed in SPECIAL CONDITIONS #8 below.
 - (c) The SWPPP must include a schedule for quarterly site inspections and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. During times of increased activity on the property covered by this permit that would expose more pollutants to precipitation, such as earth moving, reclamation, etc., site inspections shall be increased to at least once per month. Deficiencies in BMPs must be corrected within seven days. Inspection reports must be kept with the SWPPP. These must be made available to DNR personnel upon request.
 - (d) A provision for designating an individual to be responsible for environmental matters.
 - (e) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.
8. Permittee shall adhere to the following minimum Best Management Practices:
- (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or other activities and thereby prevent the contamination of storm water from these substances.
 - (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
 - (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
 - (d) Provide good housekeeping practices on the site to keep 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.

C. SPECIAL CONDITIONS (continued)

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

| SUMMARY OF WET TESTING FOR THIS PERMIT | | | | |
|--|----------|-----------|-------------|---|
| OUTFALL | A.E.C. % | FREQUENCY | SAMPLE TYPE | MONTH |
| 002 | 100 | once/year | Grab | Collect in any month, report with January Discharge Monitoring Report |

| Dilution Series | | | | | | |
|-----------------|--------------|--------------|----------------|----------------|---------------------------------------|---|
| 100% effluent | 50% effluent | 25% effluent | 12.5% effluent | 6.25% effluent | (Control) 100% upstream, if available | (Control) 100% Lab Water, also called synthetic water |

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
 - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
 - (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
 - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
 - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
- (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity tests (continued):

- (3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species (unless prior approval is obtained from the department for single species) within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met:
 - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (4) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (5) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (6) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (7) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a multiple-dilution test:
 - (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC₅₀ concentration for the most sensitive of the test organisms; **OR**,
 - (b) For facilities with an AEC greater than 30%, the LC₅₀ concentration must be greater than 100%; **AND**,
 - (c) All effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required.

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below.
- (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

C. SPECIAL CONDITIONS (continued)

9. Whole Effluent Toxicity tests (continued):

- (6) Unless otherwise specified above, multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) Reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

| | |
|----------------------------------|--|
| Test duration: | 48 h |
| Temperature: | 25 ± 1°C Temperatures shall not deviate by more than 3°C during the test. |
| Light Quality: | Ambient laboratory illumination |
| Photoperiod: | 16 h light, 8 h dark |
| Size of test vessel: | 30 mL (minimum) |
| Volume of test solution: | 15 mL (minimum) |
| Age of test organisms: | <24 h old |
| No. of animals/test vessel: | 5 |
| No. of replicates/concentration: | 4 |
| No. of organisms/concentration: | 20 (minimum) |
| Feeding regime: | None (feed prior to test) |
| Aeration: | None |
| Dilution water: | Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness. |
| Endpoint: | Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$) |
| Test acceptability criterion: | 90% or greater survival in controls |

Test conditions for (Pimephales promelas):

| | |
|----------------------------------|--|
| Test duration: | 48 h |
| Temperature: | 25 ± 1°C Temperatures shall not deviate by more than 3°C during the test. |
| Light Quality: | Ambient laboratory illumination |
| Photoperiod: | 16 h light/ 8 h dark |
| Size of test vessel: | 250 mL (minimum) |
| Volume of test solution: | 200 mL (minimum) |
| Age of test organisms: | 1-14 days (all same age) |
| No. of animals/test vessel: | 10 |
| No. of replicates/concentration: | 4 (minimum) single dilution method 2 (minimum) multiple dilution method |
| No. of organisms/concentration: | 40 (minimum) single dilution method 20 (minimum) multiple dilution method |
| Feeding regime: | None (feed prior to test) |
| Aeration: | None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min. |
| Dilution water: | Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness. |
| Endpoint: | Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$) |
| Test Acceptability criterion: | 90% or greater survival in controls |

Missouri Department of Natural Resources
Statement of Basis
Major Modification
Doe Run Indian Creek Mine Tailings Site
NPDES #: MO-0133221

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rationale for the development of the NPDES Missouri State Operating Permit (operating permit). Statement of Basis are required for all operating permits for which a Fact Sheet is not required. Statement of Basis briefly describe, among other items, the derivation of the effluent limitation and the reasons for operating permit's Special Conditions. Fact Sheets should be developed for any permit that requires complex calculations or special conditions; and this is particularly true for permit conditions based on Best Professional Judgment (BPJ).

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

PART I – FACILITY INFORMATION

Facility Type: Former lead mine/mill undergoing reclamation
Facility SIC #: 1031

Facility Description:

This facility is an inactive lead mine/mill with residual mine tailings on site exposed to precipitation. Land disturbance is authorized by this permit, including but not limited to earth moving associated with timber harvest, reclamation, excavation and remediation activities. The topography and grading of the area is such that all storm water is routed to outfall 002.

This permit authorizes a large area of contiguous property owned by Doe Run. A parcel of land within the property, authorized by MO-0136654, is operated by the U.S. EPA who is the continuing authority. The land subject to MO-0136654 receives lead contaminated soil from remediation projects for properties contaminated with lead.

Receiving Water Body's Water Quality & Facility Performance History:

Violations of effluent limits for pH. The low and very high values reported within a short period of time are not what is expected from a storm water permit at this site. The nature of the values suggest equipment calibration errors. The permittee has taken steps to address this problem.

Comments:

This modification transfers an outfall from Doe Run to another permit for the U.S. EPA. Doe Run owns the former mine site, the tailings pile and the surrounding land. EPA will be responsible for day-to-day management and maintenance of the reclamation activities associated with mine tailings pile. EPA will stage soil at the edge of or adjacent to the tailings pile until engineering design is completed, and then spread the soil over the tailings. Storm water falling on the mine tailings and soil stockpile flows to outfall 001 of MO-0136654, and then combines with other storm water flows from the property and flows to outfall 002 of this permit. The spreading of the soil by the EPA to cover the tailings is not anticipated to increase metals concentration in discharges from this site. EPA is responsible for ensuring that appropriate erosion control measures are in place to control sediment during the stockpiling of the soil. Doe Run, as owner of the entire site and the tailings, remains responsible for metals discharges from the area authorized by MO-0136654, which flow to outfall 002 of this permit.

Part II – Operator Certification Requirements

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

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

ANTI-BACKSLIDING:

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

- All limits in this statement are at least as protective as those previously established; therefore, backsliding does not apply.

- Backsliding proposed in this statement 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. New information is available now, that was not available to the Permit Writer at the time of drafting of the previous permit.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the department.

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 .

Not Applicable .

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

OUTFALL #002:

Effluent limitations have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, effluent limitations have been retained from previous state operating permit – no changes proposed.

SCHEDULE OF COMPLIANCE (SOC):

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable .

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

Not Applicable .

This permit does not contain a SOC.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

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

In accordance with the EPA's Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002), BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

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

Applicable .

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

Not Applicable .

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

WATER QUALITY STANDARDS:

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

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

Applicable ;

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

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH₃)
- Facility is a municipality or domestic discharger with a Design Flow \geq 22,500 gpd.
- Other – please justify.

An acute WET test, rather than a chronic WET test, is appropriate for this site because it is industrial storm water, not continuous flow.

Not Applicable ;

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

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

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

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

Applicable ;

Not Applicable ;

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

PART IV – EFFLUENT LIMITS DETERMINATION

Outfall # 002

| PARAMETER | Units | Basis for Limits | Daily Maximum | Weekly Average | Monthly Average | Modified | Previous permit limitations |
|----------------------------|---------|------------------|---------------|----------------|-----------------|----------|-----------------------------|
| Settleable Solids | ml/L/hr | 3,9 | 2.5 | | * | Yes | 1.5/1.0 |
| Cadmium, Total Recoverable | µg/L | 2/3 | 10.6 | | 5.3 | Yes | 7.7/3.8 |
| Lead, Total Recoverable | µg/L | 2/3 | 210.5 | | 104.9 | Yes | 139/69 |
| Zinc, Total Recoverable | µg/L | 2/3 | 225.5 | | 112.4 | Yes | 168/84 |

Basis for Limitations Codes:

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

DERIVATION AND DISCUSSION OF LIMITS:

- **Settleable Solids** This permit authorizes land disturbance activities. Effluent limits for land disturbance activities established at 2.5 ml/L/hr consistent with existing department procedures for land disturbance permits. This limit has been demonstrated to be protective of water quality in similar receiving stream settings, and is achievable with available Best Management Practices.

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 = 198 mg/L. Hardness value derived from data submitted by the permittee with the application to modify this permit.

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

| METAL | CONVERSION FACTORS | |
|---------|--------------------|-------|
| | CHRONIC | ACUTE |
| Cadmium | 0.880 | 0.915 |
| Lead | 0.691 | 0.691 |
| Zinc | 0.986 | 0.978 |

Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 198 mg/L.

Outfall #002 discharges into an unclassified receiving stream. Therefore, dilution of metals concentrations by mixing is not taken into consideration in determining the metals waste load allocations for this outfall.

Rearrangement of the terms in the EPA dilution equation discussed previously in this fact sheet yields the following:

$$C_e = \frac{C(Q_e + Q_s) - (C_s \times Q_s)}{Q_e} \quad \text{Equation 1}$$

Where C_e = allowable outfall effluent metals concentration or waste load allocation
 Q_e = outfall effluent flow rate
 C = downstream (after mixing) metals concentration allowed = metals concentration limit for protection of aquatic life
 Q_s = upstream flow rate
 C_s = upstream metals concentration

Note that in unclassified receiving streams the upstream flow $Q_s = 0$ and there is no metals concentration dilution due to mixing. Therefore, Equation 1 becomes:

$$C_e = C \quad \text{Equation 2}$$

Equation 2 indicates that the effluent metals concentration or metals waste load allocation is equal to the criteria concentration limit when there is no stream mixing. Note that the waste load allocation for an outfall does not depend on the outfall flow rate Q_e when stream mixing does not occur.

- **Cadmium, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 0.4 µg/L, Acute Criteria = 9.8 µg/L

$$\text{Acute} = 9.8 / 0.913 = 10.7 \text{ µg/L}$$

$$\text{WLA}_A = 10.7 \text{ µg/L}$$

$$\text{LTA}_A = 10.7 (0.321) = 3.4 \text{ µg/L} \quad [\text{CV} = 0.6, 99\text{th Percentile}]$$

Use most protective number of LTA_C or LTA_A .

$$\text{MDL} = 3.4 (3.11) = 10.6 \text{ µg/L} \quad [\text{CV} = 0.6, 99\text{th Percentile}]$$

$$\text{AML} = 3.4 (1.55) = 5.3 \text{ µg/L} \quad [\text{CV} = 0.6, 95\text{th Percentile}, n = 4]$$

- **Lead, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 5.6 µg/L, Acute Criteria = 144

$$\text{Acute} = 144 / 0.682 = 211 \text{ µg/L}$$

$$\text{WLA}_A = 211 \text{ µg/L}$$

$$\text{LTA}_A = 211 (0.321) = 67.7 \text{ µg/L} \quad [\text{CV} = 0.6, 99\text{th Percentile}]$$

Use most protective number of LTA_C or LTA_A .

$$\text{MDL} = 67.7 (3.11) = 210.5 \text{ µg/L} \quad [\text{CV} = 0.6, 99\text{th Percentile}]$$

$$\text{AML} = 67.7 (1.55) = 104.9 \text{ µg/L} \quad [\text{CV} = 0.6, 95\text{th Percentile}, n = 4]$$

• **Zinc, Total Recoverable** Protection of Aquatic Life Chronic Criteria = 221 µg/L, Acute Criteria = 221 µg/L

$$\text{Acute} = 221 / 0.978 = 226 \text{ µg/L}$$

$$\text{WLA}_A = 226 \text{ µg/L}$$

$$\text{LTA}_A = 226 (0.321) = 72.5 \text{ µg/L} \quad [\text{CV} = 0.6, 99\text{th Percentile}]$$

Use most protective number of LTA_C or LTA_A .

$$\text{MDL} = 72.5 (3.11) = 225.5 \text{ µg/L} \quad [\text{CV} = 0.6, 99\text{th Percentile}]$$

$$\text{AML} = 72.5 (1.55) = 112.4 \text{ µg/L} \quad [\text{CV} = 0.6, 95\text{th Percentile, } n = 4]$$

PART V – ADMINISTRATIVE REQUIREMENTS

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

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.

Date of Statement of Basis: 5-5-11

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