

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, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0002003

Owner: The Doe Run Resources Corporation d/b/a The Doe Run Company  
Address: P.O. Box 500, Viburnum, MO 65566

Continuing Authority: Same as above  
Address: Same as above

Facility Name: The Doe Run Company – Buick Mine/Mill  
Facility Address: 270 Forest Road 2231, Highway KK, Boss, MO 65440

Legal Description: See Page 2  
UTM Coordinates: See Page 2

Receiving Stream: See Page 2  
First Classified Stream and ID: Strother Creek (P) (2751) (303(d))  
USGS Basin & Sub-watershed No.: (11010007-0301)

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

**FACILITY DESCRIPTION**

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.

September 25, 2009      May 2, 2014  
Effective Date              Revised Date

Sara Parker Pauley, Director, Department of Natural Resources

September 24, 2014  
Expiration Date

John Madras, Director, Water Protection Program

**FACILITY DESCRIPTION (continued):**

Outfall #001 – SIC #1031 CERTIFIED OPERATOR NOT REQUIRED

Domestic wastewater/three cell lagoon,

Design Flow: 7,200 GPD.

Actual Flow: 3,000 GPD.

Legal Description: SE ¼, SE ¼, Sec 26, T34N, R2W, Iron Country

UTM Coordinates: X=665952, Y=4163495

Receiving Stream: Tributary to Strother Creek (U)

First Classified Stream and ID: Strother Creek (P) (2751) 303(d)

USGS Basin & Sub-watershed No.: (11010007 - 0301)

Outfall #002 – SIC #1031

Settling/clarifying basin discharge – mine dewatering/process wastewater from milling of lead, zinc, and copper bearing ores/tailings dam toe drain discharge/lagoon effluent/truck wash water/storm water runoff from the facility and surrounding watershed. Water collected in the basin is combined and undergoes treatment via settling in the tailings impoundment and subsequent treatment in a meander treatment system and settling/clarifying basin. Receives treated wastewater from Buick Resource Recycling Facility (MO-0000337).

Average flow is 13.8 MGD, Maximum measured and reported flow is 56.2 MGD. Because of storm water influence, actual flow is dependent on precipitation.

Legal Description: NW ¼, NW ¼, Sec. 4, T33N, R1W, Reynolds County

UTM Coordinates: X=671748, Y=4162105

Receiving Stream: Strother Creek (U)

First Classified Stream and ID: Strother Creek (P) (2751) 303(d)

USGS Basin & Sub-watershed No.: (11010007 - 0301)

Permitted Feature: SM1 In-stream Monitoring Point

Strother Creek approximately 0.4 miles downstream of the confluence of Little Creek

Legal Description: SW ¼, SW ¼, Sec. 34, T34N, R1W, Reynolds County

UTM Coordinates: X=672858, Y=4162888

Receiving Stream: Strother Creek (U)

First Classified Stream and ID: Strother Creek (P) (2751) 303(d)

USGS Basin & Sub-watershed No.: (11010007 - 0301)

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

PERMIT NUMBER MO-0002003

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
<b><u>Outfall #001</u></b>						
Flow	GPD	*		*	once/quarter*****	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub> **	mg/L		65	45	once/quarter*****	grab
Total Suspended Solids**	mg/L		120	80	once/quarter*****	grab
pH – Units	SU	***		***	once/quarter*****	grab
Ammonia as N	mg/L	*		*	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <b><u>QUARTERLY</u></b> ; THE NEXT REPORT IS DUE <b><u>JULY 28, 2014</u></b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b><u>Permitted Feature #SM1</u></b>						
Hardness, Total as CaCO <sub>3</sub>	mg/L	*			once/month	grab
pH – Units	SU	*			once/month	grab
Arsenic, Total Recoverable	µg/L	*			once/month	grab
Cadmium, Total Recoverable	µg/L	*			once/month	grab
Copper, Total Recoverable	µg/L	*			once/month	grab
Lead, Total Recoverable	µg/L	*			once/month	grab
Nickel, Total Recoverable	µg/L	*			once/month	grab
Zinc, Total Recoverable	µg/L	*			once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <b><u>QUARTERLY</u></b> ; THE NEXT REPORT IS DUE <b><u>JULY 28, 2014</u></b> .						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 11 PERMIT NUMBER MO-0002003	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until <b>two (2) years 364 days</b> after the effective date of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<b><u>Outfall #002</u></b>						
Flow	MGD	*		*	once/month	24 hr. total
Hardness, Total as CaCO <sub>3</sub>	mg/L	*		*	once/month	grab
pH – Units	SU	****		****	once/month	grab
Total Suspended Solids	mg/L	30		20	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Chlorides plus Sulfates	mg/L	*		*	once/month	grab
Arsenic, Total Recoverable	µg/L	*		*	once/month	grab
Cadmium, Total Recoverable	µg/L	100		50	once/month	grab
Copper, Total Recoverable	µg/L	300		150	once/month	grab
Lead, Total Recoverable	µg/L	526		263	once/month	grab
Nickel, Total Recoverable	µg/L	*		*	once/month	grab
Zinc, Total Recoverable	µg/L	860		430	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <b><u>QUARTERLY</u></b> ; THE FIRST REPORT IS DUE <b><u>January 28, 2010</u></b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Chronic Whole Effluent Toxicity (WET) Tests	TUc	1.6		See Special Condition #11	once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED <b><u>QUARTERLY</u></b> ; THE FIRST REPORT IS DUE <b><u>January 28, 2010</u></b> .						
Mercury, Total Recoverable	µg/L	2.0		1.0	once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED <b><u>ANNUALLY</u></b> ; THE FIRST REPORT IS DUE <b><u>October 28, 2012</u></b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

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 **three (3) years** from the effective date of this permit 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
<b><u>Outfall #002</u></b>						
Flow	MGD	*		*	once/month	24 hr. total
Hardness, Total as CaCO <sub>3</sub>	mg/L	*		*	once/month	grab
pH – Units	SU	****		****	once/month	grab
Total Suspended Solids	mg/L	30		20	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Chlorides	mg/L	*		*	once/month	grab
Sulfates	mg/L	*		*	once/month	grab
Arsenic, Total Recoverable	µg/L	32.7		16.3	once/month	grab
Cadmium, Total Recoverable	µg/L	1.2		0.6	once/month	grab
Copper, Total Recoverable	µg/L	85.8		42.8	once/month	grab
Lead, Total Recoverable	µg/L	56.6		28.2	once/month	grab
Nickel, Total Recoverable	µg/L	292		145.5	once/month	grab
Zinc, Total Recoverable	µg/L	434.5		216.5	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Antimony, Total Recoverable	µg/L	*		*	once/quarter	grab
Chronic Whole Effluent Toxicity (WET) Tests	TUc	1.6	See Special Condition #11		once/quarter	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**.

Mercury, Total Recoverable	µg/L	2.0		1.0	once/year	grab
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MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE **OCTOBER 28, 2012**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- \* Monitoring requirement only.
- \*\* This facility is required to meet a removal efficiency of 65% or more.
- \*\*\* pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.
- \*\*\*\* 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

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached **Parts I & III** Standard Conditions dated **October 1, 1980 and August 15, 1994**, and hereby incorporated as though fully set forth herein.

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

C. SPECIAL CONDITIONS (continued)

5. When cleaning or closing the domestic waste lagoon (Outfall #001) the permittee shall obtain prior approval from the department on final disposal of sludge.
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.
7. Industrial Sludge Disposal
  - (a) Disposal of industrial sludge is not authorized by this permit. Industrial sludge shall be disposed at a permitted solid waste disposal facility in accordance with 10 CSR 80; or if the sludge is determined to be hazardous waste, shall be disposed at a permitted hazardous waste disposal facility pursuant to 10 CSR 25.
  - (b) Non-hazardous sludge that is disposed on site or that is exempted under 10 CSR 80 must obtain applicable permits under 10 CSR 20-6.015 and 10 CSR 20-6.200.
  - (c) Each effluent monitoring report shall also specify the date any sludge is removed from the facility, who removed the sludge and the number of gallons or quantity of sludge removed. The final disposal location shall be reported, including the name of the disposal facility, the solid waste or hazardous waste disposal permit number, and date of permit issuance.
  - (d) This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act.
8. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared within 90 days and implemented within 120 days of permit issuance. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

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

The SWPPP must include the following:

- (a) An assessment of all storm water discharges associated with the facility, including those flowing to the tailings pond. This must include a list of potential contaminants and an annual estimate of amounts that will be used in the described activities.
- (b) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water.

C. SPECIAL CONDITIONS (continued)

- (c) The SWPPP must include a schedule for a monthly site inspection and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. Deficiencies must be corrected within seven days. Inspection reports must be kept on site with the SWPPP. These must be made available to DNR personnel upon request.
  - (d) A provision for designating an individual to be responsible for environmental matters.
  - (e) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.
9. The permittee shall adhere to the following minimum Best Management Practices:
- (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or other activities and thereby prevent the contamination of storm water from these substances.
  - (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
  - (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
  - (d) Provide good housekeeping practices on the site to keep solid waste from entry into waters of the state.
  - (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.
10. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.
11. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

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

Dilution Series						
100%	50%	62.5%	12.5%	6.25%	(Control) 100% upstream, if available	(Control) 100% upstream, if available

- (a) Test Schedule and Follow-Up Requirements
  - (1) All tests results shall be submitted using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 14 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
    - (a) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
    - (b) Samples submitted for analysis of upstream receiving water may be collected as a grab.

C. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity Tests (continued):

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

C. SPECIAL CONDITIONS (continued)

11. Whole Effluent Toxicity Tests (continued):

(b) Test Conditions

- (1) Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821/R-02/013, and Errata for the Effluent and Receiving Water Toxicity Testing Manuals: Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms; Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms; and Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA-600/R-98/182.
- (2) The test shall be a 3-Brood *Ceriodaphnia dubia* Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test. Testing with the green algae *Selenastrum* is not required.
- (3) All tests, including repeat tests for previous failures, shall include both test species listed below unless prior approval to use only one species is granted by the department.
- (4) Test species: *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Reconstituted dilution/control water used will be moderately hard water as described in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms.
- (6) Multiple-dilution tests will be run with:
  - (a) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (b) reconstituted water.
- (7) If, in any control more than 10% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within two (2) weeks. Furthermore, if the results do not meet the acceptability criteria in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

D. RECEIVING WATER MONITORING CONDITIONS

1. In-stream samples should be taken at the location(s) specified on page 2 of this permit. In the event that a safe, accessible location is not present at this location, a suitable location can be negotiated with the department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface. The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream.
2. When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream/lake characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) or the lake depth from where the sample was collected. These observations shall be submitted with the sample results.
3. Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
  - If turbidity in the stream increases notably; or
  - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
4. Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
5. Please contact the department if you need additional instructions or assistance.

**Missouri Department of Natural Resources**  
**FACT SHEET**  
**FOR THE PURPOSE OF MODIFICATION**  
**OF**  
**MO-0002003**  
**DOE RUN, BUICK MINE / MILL**

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

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit. This Factsheet is for a Major , Industrial Facility .

**Part I – Facility Information**

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

Facility Description:

Mining and milling of lead, zinc and copper bearing ores. Process wastewaters include mine dewatering, process wastewater from milling of ores, tailings slurry, tailings impoundment dam toe drain discharge, and domestic wastewater. The facility also manages truck wash water and storm water runoff from the facility and surrounding watershed. Domestic wastewater receives treatment in a three cell lagoon. Lagoon effluent, mine water, process wastewater from milling of ores, tailings slurry, tailings dam toe drain discharge, along with truck wash water and storm water runoff from the facility and surrounding watershed receive treatment by settling in the tailings impoundment and subsequent treatment in a meander treatment system and settling/clarifying basin.

**2014 modification:** Doe Run is proposing to upon issuance of this modification, combine flows from Buick Mine/Mill and Buick Resource Recycling Facility to process and treat wastewater and stormwater flows from the two facilities. In the near future Buick Mine/Mill will be constructing a new wastewater treatment plant for compliance with final effluent limits and for additional treatment of the flows from the two facilities. The proposed treatment technology is currently under review and may consist of chemical addition for precipitation, flocculation, and clarification. Flows from the Buick Resource Recycling Facility will be routed to the Buick Mine's tailings impoundment for eventual discharge through outfall 002 which is located more than a mile downstream of the tailings impoundment. The average flow at Outfall 002 is estimated to increase from 13.4 mgd to 13.8 mgd. As a result of receiving flows from Buick Resource Recycling Facility, quarterly monitoring for antimony was included at Outfall 002, along with separating chlorides and sulfates into individual parameters rather than how they were previously grouped as chlorides plus sulfates. An Antidegradation Review was completed for the increase in flow from 13.4 to 13.8 MGD, with the result showing overall loading to Tributary to Strother Creek being reduced with the new treatment plant and final effluent limits.

Previous modifications to this permit in 2010, 2011, and 2013 included:

- Revision of the final effluent limits for Copper, Lead, Nickel and Zinc. This modification is the result of site specific dissolved metal translator study conducted by the permittee, under a study plan approved by the Department of Natural Resources.
- Correction of the Effluent Limit Guideline citations.
- The sample type for WET testing is changed from a 24 hr. composite sample to a grab sample.

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.011	Equivalent to Secondary	Domestic wastewater	~5.2
002	21.39	Chemical/physical	Process wastewater	~0.6

**Part II – Operator Certification Requirements**

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

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

**Part III – Receiving Stream Information**

**APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:**

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

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

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

**RECEIVING STREAM(S) TABLE:**

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Tributary to Strother Creek	U	----	General Criteria	1101007	Ozark/Black/Current
Strother Creek	U	---	General Criteria		
Strother Creek	P	2751	LWW, AQL, CLF, WBC***		

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

**RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:**

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Strother Creek (U)	0.0	0.0	0.0

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

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

**RECEIVING STREAM MONITORING REQUIREMENTS:**

**Instream Monitoring Point (SM1, formally outfall 003)** – Strother Creek approximately 0.4 miles downstream of the confluence of Little Creek

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Hardness, Total as CaCO <sub>3</sub>	once/month	grab	X=672935, Y=4162839 SW ¼, Sec. 33, T34N, R1W, Reynolds County
pH			
Arsenic, Dissolved			
Cadmium, Dissolved			
Copper, Dissolved			
Lead, Dissolved			
Mercury, Dissolved			
Nickel, Dissolved			
Zinc, Dissolved			

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

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

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

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

**ANTI-BACKSLIDING:**

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

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

**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.

Applicable : New and/or expanded discharge. See **Appendix A** for the Antidegradation Review. Doe Run is proposing to combine flows from Buick Resource Recycling Facility and Buick Mine/Mill and to construct a treatment facility to process and treat wastewater and stormwater flows from the two facilities. To accomplish this, Doe Run would pump water from Buick Recycling Pretreatment Facility (BRRF-001) to Buick Mine/Mill and drain into Buick Mine/Mill Pond /tailings impoundment. The treated water would discharge through Outfall #002 into Strother Creek. With the installation of treatment facilities to meet final effluent limits in the Buick Mine/Mill permit, the flows will increase but the metal loadings will decrease. The new design flow at Outfall 002 is conservatively estimated to be 13.8 mgd.

**APPLICABLE PERMIT PARAMETERS:**

Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits (TBEL), and from appropriate sections of the renewal application.

**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.

**BIOSOLIDS, SLUDGE, & SEWAGE SLUDGE:**

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. 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://dnr.mo.gov/env/wpp/pub/index.html>, 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 by the U.S. EPA and the State of Missouri due to violations of the Missouri Clean Water Law and the Federal Clean Water Act.

**PRETREATMENT PROGRAM:**

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)]. Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Not Applicable : The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

**REASONABLE POTENTIAL ANALYSIS (RPA):**

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

Not Applicable : A RPA was not conducted for this facility.

**REMOVAL EFFICIENCY:**

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ [www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm](http://www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm).

Applicable : Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

**SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):**

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

Not applicable : This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

**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)]. The schedule of compliance originally issued for this facility has expired; however Doe Run is working with the Department and EPA on extending the schedule to allow additional time for compliance. If agreed upon, the additional time will be reflected in the revised Consent Judgment.

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

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

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

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

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

**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:

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

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID). Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

**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.

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

**WATER QUALITY STANDARDS:**

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

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

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

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

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH<sub>3</sub>)
- Facility is a municipality or domestic discharger with a Design Flow ≥ 22,500 gpd.
- Other – please justify.

**40 CFR 122.41(M) - BYPASSES:**

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass, which includes blending, is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar.

Not Applicable : This facility does not bypass.

**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 : Strother Creek is on the 2012 303(d) list for Nickel, Lead, Zinc, and Arsenic. The unclassified portion of Strother Creek below the mine, as well as seven miles of the classified portion of the stream are impaired. The sole source of this pollution is the Buick Mine. A TMDL has not been prepared for this receiving stream, therefore water quality based effluent limits have been imposed. When a TMDL is completed, if a more stringent wasteload is allocated to this facility the permit will be reopened and modified.

- Doe Run Buick Mine/Mill is considered to be a source of or has the potential to contribute to the above listed pollutant(s).

**Part V – Effluent Limits Determination**

**Outfall #001: Domestic Wastewater**

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNITS	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	GPD	1	*		*	No	
Biochemical Oxygen Demand <sub>5</sub> **	mg/L	1		65	45	No	
Total Suspended Solids **	mg/L	1		120	80	No	
pH - Units	SU	1	6 or above		6 or above	No	
Ammonia as N	mg/L	3/4/9	*		*	Yes	***

- \* - Monitoring requirement only
- \*\* - This facility is required to meet a removal efficiency of 65% or more.
- \*\*\* - Parameter not previously established in previous state operating permit.
- N/A – Not applicable

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         |

**OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:**

- **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.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>):** Effluent limitations are deemed protective and have been retained from previous state operating permit, [10 CSR 20-7.015(8)(B)3.A.].
- **Total Suspended Solids (TSS):** Effluent limitations from the previous state operating permit 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. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** subsection of the **Receiving Stream Information**.
- **pH** [10 CSR 20-7.015(8)(B)3.A.].
- **Total Ammonia Nitrogen:** Monitoring of ammonia is included in this permit to determine whether “reasonable potential” to exceed water quality standards exists after the discharge begins.

## Outfall #002 – Process Wastewater

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

### EFFLUENT LIMITATIONS TABLE:

PARAMETER	BASIS FOR LIMIT	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS LIMIT
FLOW	1	MGD	*		*	N	
pH - UNITS	2	SU	6.5–9.0		6.5–9.0	N	
TOTAL SUSPENDED SOLIDS	3,12	mg/L	30		20	N	
OIL & GREASE	3,12	mg/L	15		10	N	
CHLORIDES	3,12	mg/L	*		*	Y	CHLORIDES PLUS SULFATES
SULFATE	3,12	mg/L	*		*	Y	
ANTIMONY, TOTAL RECOVERABLE	3,12	µg/L	*		*	Y	***
ARSENIC, TOTAL RECOVERABLE	3,12	µg/L	32.7		16.3	N	
CADMIUM, TOTAL RECOVERABLE	3,12	µg/L	1.2		0.6	N	
COPPER, TOTAL RECOVERABLE	3,12	µg/L	85.8		42.8	N	
LEAD, TOTAL RECOVERABLE	3,12	µg/L	56.6		28.2	N	
MERCURY, TOTAL RECOVERABLE	3,12	µg/L	2.0		1.0	N	
NICKEL, TOTAL RECOVERABLE	3,12	µg/L	292		145.5	N	
ZINC, TOTAL RECOVERABLE	3,12	µg/L	434.5		216.5	N	
WHOLE EFFLUENT TOXICITY (WET) TEST	11,12	TUc	1.6			N	

\* - Monitoring requirement only

\*\*\* - Parameter not previously established in previous state operating permit.

N/A – Not applicable

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         |

### Outfall #002-Derivation and Discussion of Limits:

- **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.
- **pH.** The categorical effluent limit in 40 CFR 440.102(b) requires a pH to be maintained in the range of six to nine (6.0-9.0) standard units. The water quality standard in 10 CSR 20-7.015(9)(G)1 and 10 CSR 20-7.031(4)(E) requires the pH be maintained in the range of six and half to nine (6.5– 9.0) standard units. The Missouri Water Quality Standards are more protective and are in effect.
- **Total Suspended Solids (TSS).** The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily concentration of 30 mg/L and a monthly average of 20 mg/L.
- **Oil & 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.
- **Sulfates as SO<sub>4</sub>.** Monitoring to determine if this facility poses a reasonable potential to violate water quality standards.
- **Chlorides.** Monitoring to determine if this facility poses a reasonable potential to violate water quality standards.

- **Metals**

- **Hardness Dependent 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 a water hardness of 393 mg/L is used in the calculation of water quality criteria. 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 an unclassified stream which flows more than a mile before reaching a 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 unclassified stream is expected to closely resemble the effluent hardness from this facility.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.550	0.550
Lead	0.310	0.310
Nickel	0.930	0.930
Zinc	0.860	0.860

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

- **Antimony, Total Recoverable.** Quarterly Monitoring only. Antimony is categorical effluent parameters at Buick Resource Recycling Facility and the final concentrations before discharge should be monitored.

- **Arsenic, Total Recoverable.** Protection of Aquatic Life Chronic Criteria= 20.0 µg/L, (Table A of 10 CSR 20-7, pgs.20-21)

Chronic= 20.0 µg/L

LTA<sub>c</sub>= 20.0(0.527)= **10.5** µg/L

MDL= 10.5(3.11) = 32.7 µg/L

AML= 10.5 (1.55) = 16.3 µg/L

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 95<sup>th</sup> Percentile, n= 4]

- **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= 0.6µg/L, Acute Criteria = 16.5 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 0.6/0.855 = 0.7 µg/L

Acute= 16.5/0.890 = 18.5 µg/L

LTA<sub>c</sub>= 0.7(0.527)= **0.4** µg/L

LTA<sub>a</sub>= 18.5(0.321) = 5.9 µg/L

MDL=0.4(3.11) = 1.2 µg/L

AML= 0.4(1.55) = 0.6 µg/L

WLA<sub>c</sub>= 0.7 µg/L

WLA<sub>a</sub>=18.5 µg/L

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 95<sup>th</sup> 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= 28.8 µg/L, Acute Criteria = 48.8 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 28.8/0.550 = 52.7 µg/L

Acute= 48.8/0.550 = 88.7 µg/L

LTA<sub>c</sub>= 52.4(0.527)= **27.63** µg/L

LTA<sub>a</sub>= 88.7(0.321) = 28.5 µg/L

MDL=27.6 (3.11) = 85.8 µg/L

AML= 27.6 (1.55) = 42.8 µg/L

WLA<sub>c</sub>= 52.4 µg/L

WLA<sub>a</sub>= 88.7 µg/L

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 99<sup>th</sup> Percentile]

[CV= 0.6, 95<sup>th</sup> 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= 10.7µg/L, Acute Criteria = 276 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic =  $10.7/0.310 = 34.5$  µg/L  
Acute= $276/0.310 = 890$ µg/L  
 $LTA_c = 34.5(0.527) = 18.2$  µg/L  
 $LTA_a = 890(0.321) = 285.7$  µg/L  
MDL= $18.2(3.11) = 56.6$  µg/L  
AML=  $18.2(1.55) = 28.2$  µg/L

$WLA_c = 34.5$  µg/L  
 $WLA_a = 890$  µg/L  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 95<sup>th</sup> 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.

- **Nickel, Total Recoverable.** Protection of Aquatic Life Chronic Criteria= 166 µg/L, Acute Criteria = 1491 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic =  $166/0.930 = 178$  µg/L  
Acute= $1491/0.930 = 1603$ µg/L  
 $LTA_c = 178(0.527) = 93.8$  µg/L  
 $LTA_a = 1603(0.321) = 515$  µg/L  
MDL= $93.8(3.11) = 292$  µg/L  
AML=  $93.8(1.55) = 145$  µg/L

$WLA_c = 178$  µg/L  
 $WLA_a = 1603$  µg/L  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 95<sup>th</sup> Percentile, n= 4]

- **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= 374µg/L, Acute Criteria = 374 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic =  $374/0.860 = 435$  µg/L  
Acute=  $3747/0.860 = 435$  µg/L  
 $LTA_c = 435(0.527) = 229.2$  µg/L  
 $LTA_a = 435(0.321) = 139.6$  µg/L  
MDL= $139.6(3.11) = 434.5$  µg/L  
AML=  $139.6(1.55) = 216.4$  µg/L

$WLA_c = 435$  µg/L  
 $WLA_a = 435$  µg/L  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 99<sup>th</sup> Percentile]  
[CV= 0.6, 95<sup>th</sup> Percentile, n= 4]

- **WET Test.** 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*. It is recommended that WET testing be conducted during the period of lowest stream flow.
  - Chronic
    - No less than TWICE/YEAR:**
      - Facility handles large quantities of toxic substances, or substances that are toxic in large amounts. Quarterly testing from the existing permit is retained.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, streams are 100%, 50%, 25%, 12.5%, & 6.25%.

Acute WET  $WLA_a = 0.3$

A default acute to chronic ratio value of 10 is used based on the information presented in Chapter 1 and Appendix A of the TSD.

$WLA_{a,c} = WLA_a \times ACR$ , where ACR = acute-to-chronic ratio  
 $WET\ WLA_{a,c} = 10 (0.3TU_a) = 3.0TU_{a,c}$

Chronic WET  $WLA_c = 1.0$

From this point forward, the effluent limit calculation is the same as for other parameters, such as metals. This example is for Chronic WET.

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, 99<sup>th</sup> Percentile]  
 $LTA_c = 1.0\ TU_c (0.527) = 0.527$  [CV = 0.6, 99<sup>th</sup> 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  $LTA_a$  and  $LTA_c$  is used to derive the effluent limits. As shown above, the  $LTA_c$  value was less than the  $LTA_{a,c}$  value.

WET Limit  $0.527\ TU (3.11) = 1.6\ TU$  [CV = 0.6, 99<sup>th</sup> Percentile]

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

Categorical effluent limits represent minimum technology based standards.

Part 440 - Ore Mining and Dressing Point Source Category  
 Subpart J - Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory  
 40 CFR 440.102(a)

Effluent Characteristic	Maximum for any 1 day	Average of daily values for 30 consecutive days
	<u>Milligrams per Liter</u>	
TSS.....	30.0	20.0
Cu.....	0.30	0.15
Zn.....	1.5	0.75
Pb.....	0.6	0.3
Hg.....	0.002	0.001
pH.....	(1\)	(1\)

1\ Within the range 6.0 to 9.0

### **COMPARISON OF WATER QUALITY BASED EFFLUENT LIMITS VS. CATEGORICAL LIMITS**

A comparison must be made of all calculated water quality based effluent limits and categorical limits. The most protective limit appears in the permit.

Effluent Parameter	Units	WQBEL	Categorical Limit
pH	SU	<b>6.5 - 9.0</b>	6.0 - 9.0
Total Suspended Solids	mg/L	N/A	<b>30 / 20</b>
Arsenic, Total Recoverable	µg/L	<b>32.7/16.3</b>	N/A
Cadmium, Total Recoverable	µg/L	<b>1.2/0.6</b>	100 / 50
Copper, Total Recoverable	µg/L	<b>85.8/42.8</b>	300 / 150
Lead, Total Recoverable	µg/L	<b>56.6/28.2</b>	600 / 300
Mercury, Total Recoverable	µg/L	N/A	<b>2 / 1</b>
Nickel, Total Recoverable	µg/L	<b>292/145.5</b>	N/A
Zinc, Total Recoverable	µg/L	<b>434.5/216.5</b>	1,000 / 500

### **Part VI – Administrative Requirements**

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

#### **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.

#### **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 is tentatively scheduled to begin March 14, 2014.

**COMPLETED BY:**

**DATE OF REVISED FACT SHEET: 12/29/2013**  
**LEASUE MEYERS, EIT**  
**ENGINEERING SECTION**  
**WATER PROTECTION PROGRAM**  
[leasue.meyers@dnr.mo.gov](mailto:leasue.meyers@dnr.mo.gov)

DATE OF REVISED FACT SHEET: 03/25/2013  
JOY JOHNSON, ENVIRONMENTAL SPECIALIST III  
NPDES PERMITS UNIT  
WATER PROTECTION PROGRAM  
[joy.johnson@dnr.mo.gov](mailto:joy.johnson@dnr.mo.gov)

DATE OF FACT SHEET: 10/17/2011  
CURT B. GATELEY, CHIEF  
NPDES PERMITS UNIT  
WATER PROTECTION PROGRAM  
[curtis.gateley@dnr.mo.gov](mailto:curtis.gateley@dnr.mo.gov)

**Appendix A: Antidegradation Review**



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

[www.dnr.mo.gov](http://www.dnr.mo.gov)

OCT 30 2013

Mr. James Lanzafame, Environmental Health and Safety Manager  
Doe Run Resource Recycling Division  
PO Box 500  
Viburnum, MO 65566

RE: Preliminary Determination on *Antidegradation Report for the proposed transfer of flows from Doe Run's Buick Resource Recycling Facility, MO-0000337, to Buick Mine/Mill, MO-0002003, Iron County*

Dear Mr. Lanzafame:

Enclosed please find the finalized Water Quality and Antidegradation Review (WQAR) for the Buick Resource Recycling Facility and Buick Mine/Mill in Iron County. The WQAR contains pertinent antidegradation review information based on the use of existing water quality, effluent limitations and monitoring requirements for the facility discharge. It was developed in accordance with 10 CSR 20-7.031, the Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (AIP) dated May 7, 2008, U.S. Environmental Protection Agency (US EPA) guidance, the applicant-supplied antidegradation review documentation, and the State of Missouri's effluent regulations (10 CSR 20-7.015). Please refer to the *General Assumptions of the Water Quality and Antidegradation Review* section of the enclosed WQAR. The WQAR is preliminary and subject to change as new information becomes available during future permit application processing.

Based on the Missouri Department of Natural Resources' (department's) initial review, preliminary determination is that the applicant-supplied antidegradation review documentation satisfies the requirements of the AIP. This WQAR/preliminary determination may be appealed within 30 days of this letter in accordance with the AIP Section II.F.4.

You may proceed with submittal of an application for an operating permit modification and antidegradation review public notice. These submittals must reflect the design flow, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited.

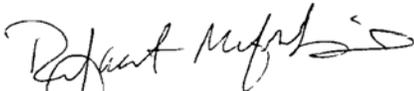
Mr. Lanzafame  
Buick Mine/Mill, MO0002003  
Page 2

Following the Department's public notice of draft Missouri State Operating Permit including the antidegradation review findings and preliminary determination, the Department will review any public notice comments received. If significant comments are made, the project may require another public notice and potentially another antidegradation review. If no comments are received or comments are resolved without another public notice, these findings and determinations will be considered final. Following issuance of the construction permit and completion of the actual facility construction, the Department will proceed with the issuance of the operating permit.

If you should have questions regarding the enclosed WQAR, please contact Ms. Leasue Meyers by telephone at (573) 751-7906, by e-mail at [leasue.meyers@dnr.mo.gov](mailto:leasue.meyers@dnr.mo.gov), or by mail at the Missouri Department of Natural Resources, Water Protection Program, PO Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM



Refaat Mefrakis, P.E., Chief  
Engineering Section

RM:lm

Enclosure

c: Ms. Amanda Sappington, WPP  
Mr. Robert Brundage, Newman, Comley, and Ruth

# **Water Quality and Antidegradation Review**

*For the Protection of Water Quality and Determination of Effluent Limits for Discharge to  
Strother Creek*

*by*

***Doe Run Buick Mine/Mill Treatment Facility***



October 2013

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**1. FACILITY INFORMATION**

FACILITY NAME: Doe Run Buick Mine/Mill NPDES #: MO0002003

FACILITY TYPE/DESCRIPTION: Doe Run is proposing to combine flows from Buick Mine/Mill and Buick Resource Recycling Facility and to construct treatment facilities at Buick Mine/Mill to process and treat wastewater and stormwater flows from the two facilities. The proposed treatment technology is currently under review and may consist of chemical addition for precipitation, flocculation, and clarification. Flows will be routed to Buick Mine/Mill Outfall 002. The average flow at Outfall 002 is estimated to increase from 13.4 mgd to 13.8 mgd.

BUICK MINE/MILL MAIN DISCHARGE, OUTFALL #002

COUNTY: Iron UTM COORDINATES: X= 671748; y= 4162105  
 12- DIGIT HUC: 11010007-0301 LEGAL DESCRIPTION: NW ¼, NW ¼, Sec.33, T33N, R01W  
 EDU\*: Ozark/Black/Current ECOREGION: Ozark/Highlands/ Current River Hills

Buick Resource Recycling Facility (MO0000337) Outfall 001 is a discharge from pretreatment facility, with an average flow of 0.396 MGD. The pretreatment facility includes the following unit processes:

1. Physical settling in the six million gallon above-ground concrete collection tank. The wastewater is then pumped into the wastewater treatment plant.
2. Chemical addition for coagulation and sedimentation of insoluble heavy metals.
3. pH adjustment
4. Mixing and clarification
5. Polishing Filter(s) before routing for final treatment

PRETREATMENT FACILITY, BUICK RESOURCE RECYCLING FACILITY, OUTFALL #001 (MO00000337)

COUNTY: Iron UTM COORDINATES: X=664868; Y= 4166819  
 12- DIGIT HUC: 07140102-0402 LEGAL DESCRIPTION: SE ¼, SW ¼, Sec. 14, T34N, R2W  
 EDU\*: Ozark/Meramec ECOREGION: Ozark/Highlands/ Meramec River Hills

\* - Ecological Drainage Unit

**2. WATER QUALITY INFORMATION**

In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (MDNR) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body’s available assimilative capacity is justified. Effective August 30, 2008, a facility is required to use *Missouri’s Antidegradation Implementation Procedure (AIP)* for new and expanded wastewater discharges.

2.1. WATER QUALITY HISTORY:

Strother Creek is listed as impaired in Missouri’s U.S. Environmental Protection Agency, or EPA, approved 2012 303(d) list of impaired waters for arsenic, lead, nickel, and zinc in water and/or sediment.

Crooked Creek is on the 2012 303(d) list for cadmium in sediment and water column, lead in sediment, and copper in the water. With the proposed consolidation of flows to Viburnum Operations and Buick Mine/Mill, loading and discharges to Crooked Creek by Casteel and Buick Recycling will be eliminated.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
002	21.39	Chemical/physical	Tributary to Strother Creek	~0.6

### 3. RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*
Tributary to Strother Creek	U	--	General Criteria
Strother Creek	P	2751	AQL, CLF, LLW, WBC(B)

\* Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cold Water Fishery (CDF), Cool Water Fishery (CLF), Drinking Water Supply (DWS), Industrial (IND), Irrigation (IRR), Livestock & Wildlife Watering (LWW), Secondary Contact Recreation (SCR), Whole Body Contact Recreation (WBC).

### 4. EPA REGION 7 CONSENT JUDGMENT

Doe Run Resources Corp. has agreed to correct violations of several environmental laws at ten of its lead mining, milling and smelting facilities in southeast Missouri. The settlement requires Doe Run to establish financial assurance trust funds, for the cleanup of Herculaneum and the following active or former mining and milling facilities: Brushy Creek, Buick, Fletcher, Sweetwater, Viburnum and West Fork. This commitment ensures that financing will be available to fund the cleanup of the smelter property and the six mining and milling sites whenever they are eventually closed. Doe Run will also take steps to finalize and come into compliance with more protective Clean Water Act permits at ten of its facilities, including Herculaneum, Glover, Buick Mill, Brushy Creek, Fletcher, Sweetwater, Viburnum, West Fork, Viburnum Mine #35 (Casteel), and Buick Resource Recycling.

### 5. ANTIDegradation REVIEW INFORMATION

The following is a review of the *Antidegradation Report* dated July 22, 2013.

#### 5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge, based on the existing discharge permits. Pollutants of concern are defined as those pollutants “proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge.” (AIP, Page 7). Loading is being reduced for the pollutants; however a discussion of alternatives is included in section 5.3 to discuss how Doe Run approached the upgrades and changes at the facilities.

Table 2. Pollutants of Concern and Tier Determination

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
Total Suspended Solids (TSS)	**	Minimal	
pH	***	Minimal	Permit limits applied
Oil and Grease	2	Minimal	Permit limits applied
Arsenic, Total Recoverable	2	Minimal	Permit limits applied
Cadmium, Total Recoverable	1	Minimal	Permit limits applied
Copper, Total Recoverable	2	Minimal	Permit limits applied
Lead, Total Recoverable	1	Minimal	Permit limits applied
Mercury, Total Recoverable	2	Minimal	Permit limits applied
Zinc, Total Recoverable	1	Minimal	Permit limits applied

\* Tier assumed. Tier determination not possible: \*\* No in-stream standards for these parameters. \*\*\* Standards for these parameters are ranges

## 5.2. EXISTING WATER QUALITY

Strother Creek is on the 2012 303(d) list for Nickel, Lead, Zinc, and Arsenic. The unclassified portions of Strother Creek below the mine and seven miles of the classified portion of the stream are impaired. The sole source of this pollution is the Buick Mine. A TMDL has not been prepared for this receiving stream; therefore water quality based effluent limits have been imposed.

Under the NPDES renewals and the EPA Consent Judgment, Doe Run is being required to meet final limits that will allow receiving streams to meet the water quality standards. Doe Run is installing treatment facilities to remove metals out of the process wastewater, along with implementing best management practices to reduce stormwater flows through Stormwater Pollution Prevention Plans.

## 5.3. DEMONSTRATION OF NECESSITY AND SOCIAL AND ECONOMIC IMPORTANCE

Doe Run approached the antidegradation requirements on a watershed/regionalization holistic basis. The seven facilities affected are in different sub-watersheds; however the impact of the Doe Run's operations affects a regional area of Iron, Reynolds, and Washington Counties.

To meet final water quality based effluent limits, Doe Run has chosen to upgrade treatment at the existing mines and mills. The current technology used in tailings ponds and settling basins removes a percentage of the metals, but not to the level required under the renewed state operating permit. Doe Run has performed a wastewater treatability study and preliminary feasibility and cost analyses addressing all seven facilities. There is not an off-the shelf technology available to meet the effluent limits required for cadmium, lead, and zinc. Doe Run completed pilot projects using chemical addition for precipitation, flocculation, and clarification, as well as biotreatment. Doe Run also evaluated the cost associated with building seven treatment plants at their mines and mills, and examined whether operations could be combined. Doe Run determined building five treatment facilities, and rerouting and pumping of existing flows to different locations was the best alternative from a cost standpoint and from an environmental impact point of view.

Along with the rerouting of flows from Buick Resource Recycling to Buick Mine/Mill, Doe Run decided to reroute flows from the Casteel mine over to the Viburnum Mine #28/29. By transferring the Casteel water to the Viburnum Operations, there will no longer be a discharge into Crooked Creek.

Buick Mine/Mill (MO0002003) has two existing outfalls. Currently Outfall 002 is a discharge from the settling/clarifying basin with an average flow of 13.4 MGD. The discharge is to Strother Creek. Strother Creek is on the 2012 303(d) list for water and/or sediment impairments for lead, zinc, nickel, and arsenic.

Buick Resource Recycling Facility (MO0000337) has four existing outfalls. Currently Outfall 001 is a discharge from pretreatment facility, with an actual flow of 0.396 MGD. The pretreatment facility includes the following unit processes:

1. Physical settling in the six million gallon above-ground concrete collection tank. The wastewater is then pumped into the wastewater treatment plant.
2. Chemical addition for coagulation and sedimentation of insoluble heavy metals.
3. pH adjustment
4. Mixing and clarification
5. Polishing Filter(s) before routing for final treatment

Prior to rerouting flows from Buick Resource Recycling Facility to the Buick Mine/Mill, the flows at the Recycling Facility will meet the categorical effluent limits of Nonferrous Metal Manufacturing Point Source Category, Secondary Lead Subcategory, 40 CFR 421.134 and Primary Lead Subcategory, 40 CFR 421.73(D) (Appendix B: Categorical Effluent Limits Determination). The existing discharge is to Crooked Creek, which is on the 303(d) list for cadmium, lead, and copper.

Doe Run is proposing to combine flows from Buick Resource Recycling Facility and Buick Mine/Mill and to construct a treatment facility to process and treat wastewater and stormwater flows from the two facilities. To accomplish this, Doe Run would pump water from Buick Recycling Pretreatment Facility (BRRF-001) to Buick Mine or Mill and drain into

Buick Mine/Mill Pond / tailings impoundment. The treated water would discharge through Outfall 002 into Strother Creek. With the installation of treatment facilities to meet final effluent limits in the Buick Mine/Mill permit, the flows will increase but the metal loadings will decrease. The new design flow at Outfall 002 is conservatively estimated to be 13.8 mgd.

The community affected by the new treatment plant and the combination of flows is the residents of Iron and Reynolds counties. Doe Run is a large employer to the communities, providing a direct and indirect impact to the economy and the tax base. Doe Run is removing environmental health hazards to the community by decreasing loading into the streams from the facilities, combining flows from the plants and removing risks on Crooked Creek and decreasing loading to Strother Creek.

Tables 3: Change in Loading for Buick Mine/Mill

Parameters	Interim limit	Final limit	Change in load
	mg/L	mg/L	%
Cadmium	0.1	0.0012	-98.8%
Copper	0.3	0.0858	-70.6%
Lead	0.526	0.0566	-88.9%
Zinc	0.826	0.4345	-47.9%

## 6. GENERAL ASSUMPTIONS OF THE WATER QUALITY AND ANTIDegradation REVIEW

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

## 7. MIXING CONSIDERATIONS

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

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

## 8. PERMIT LIMITS AND MONITORING INFORMATION

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N): No USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N): No WHOLE BODY CONTACT USE RETAINED (Y OR N): No  
 WET TEST (Y OR N): YES FREQUENCY: ONCE/QUARTER AEC: 100% METHOD: MULTIPLE

TABLE 4: OUTFALL 002 EFFLUENT LIMITS

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 1)	MONITORING FREQUENCY
FLOW	MGD	*		*	FSR	ONCE/MONTH
PH - UNITS	SU	6.5–9.0		6.5–9.0	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS	mg/L	30		20	FSR	ONCE/MONTH
OIL & GREASE	mg/L	15		10	FSR	ONCE/MONTH
CHLORIDES	mg/L	*		*	WQBEL	ONCE/MONTH
SULFATE	mg/L	*		*	WQBEL	ONCE/MONTH
ANTIMONY, TOTAL RECOVERABLE	µg/L	*		*	WQBEL	ONCE/QUARTER
ARSENIC, TOTAL RECOVERABLE	µg/L	32.7		16.3	WQBEL	ONCE/MONTH
CADMIUM, TOTAL RECOVERABLE	µg/L	1.2		0.6	WQBEL	ONCE/MONTH
COPPER, TOTAL RECOVERABLE	µg/L	85.8		42.8	WQBEL	ONCE/MONTH
LEAD, TOTAL RECOVERABLE	µg/L	56.6		28.2	WQBEL	ONCE/MONTH
MERCURY, TOTAL RECOVERABLE	µg/L	2.0		1.0	TBEL	ONCE/YEAR
NICKEL, TOTAL RECOVERABLE	µg/L	292		145.5	WQBEL	ONCE/MONTH
ZINC, TOTAL RECOVERABLE	µg/L	434.5		216.5	WQBEL	ONCE/MONTH
WHOLE EFFLUENT TOXICITY (WET) TEST	TUc	1.6			WQBEL	ONCE/QUARTER

\* - Monitoring requirements only.

NOTE 1 –WATER QUALITY-BASED EFFLUENT LIMITATION --WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT--MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT--PEL; TECHNOLOGY-BASED EFFLUENT LIMIT--TBEL; OR NO DEGRADATION EFFLUENT LIMIT--NDEL; OR FSR --FEDERAL/STATE REGULATION; OR N/A--NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

## 9. RECEIVING WATER MONITORING REQUIREMENTS

At Buick Mine/Mill, receiving stream monitoring is required in the existing permit, approximately 10 yards below the confluence of Strother Creek and Little Creek at SM1. At Buick Resource Recycling Facility, instream monitoring is currently required. With the permit modification of Buick Resource, the requirement for instream monitoring should be evaluated for Crooked Creek, as the proposed transfer of water to Buick Mine will remove discharge from Crooked Creek.

## 10. DERIVATION AND DISCUSSION OF LIMITS

1) Wasteload allocations and limits were calculated using water quality-based – Using water quality criteria or water quality model results and the dilution equation below:

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

Where C = downstream concentration  
 C<sub>s</sub> = upstream concentration  
 Q<sub>s</sub> = upstream flow  
 C<sub>e</sub> = effluent concentration  
 Q<sub>e</sub> = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration). Water quality-based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA’s “Technical Support Document For Water Quality-based Toxics Control” (EPA/505/2-90-001).

10.1. *OUTFALL #002* – BUICK MINE/MILL MAIN OUTFALL LIMIT DERIVATION

- **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.
- **pH.** The categorical effluent limit in 40 CFR 440.102(b) requires a pH to be maintained in the range of six to nine (6.0-9.0) standard units. The water quality standard in 10 CSR 20-7.015(9)(G)1 and 10 CSR 20-7.031(4)(E) requires the pH be maintained in the range of six and half to nine (6.5– 9.0) standard units. The Missouri Water Quality Standards are more protective and are in effect.
- **Total Suspended Solids (TSS).** The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily concentration of 30 mg/L and a monthly average of 20 mg/L.
  - **Oil & 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.
  - **Sulfates as SO<sub>4</sub>.** Monitoring to determine if this facility poses a reasonable potential to violate water quality standards.
  - **Chlorides.** Monitoring to determine if this facility poses a reasonable potential to violate water quality standards.

• **Metals**

Hardness Dependent 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 a water hardness of 393 mg/L is used in the calculation of water quality criteria. 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 an unclassified stream which flows more than a mile before reaching a 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 unclassified stream is expected to closely resemble the effluent hardness from this facility.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.550	0.550
Lead	0.310	0.310
Nickel	0.930	0.930
Zinc	0.860	0.860

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

- **Antimony, Total Recoverable.** Quarterly Monitoring only. Antimony is categorical effluent parameters at Buick Resource Recycling Facility and the final concentrations before discharge should be monitored.

- **Arsenic, Total Recoverable.** Protection of Aquatic Life Chronic Criteria= 20.0 µg/L, (Table A of 10 CSR 20-7, pgs.20-21)

Chronic= 20.0 µg/L  
LTA<sub>c</sub>= 20.0(0.527)= **10.5** µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
MDL= 10.5(3.11) = 32.7 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
AML= 10.5 (1.55) = 16.3 µg/L [CV= 0.6, 95<sup>th</sup> Percentile, n= 4]

- **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= 0.6µg/L, Acute Criteria = 16.5 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 0.6/0.855 = 0.7 µg/L WLA<sub>c</sub>= 0.7 µg/L  
Acute= 16.5/0.890 = 18.5 µg/L WLA<sub>a</sub>=18.5 µg/L  
  
LTA<sub>c</sub>= 0.7(0.527)= **0.4** µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
LTA<sub>a</sub>= 18.5(0.321) = 5.9 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
MDL=0.4(3.11) = 1.2 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
AML= 0.4(1.55) = 0.6 µg/L [CV= 0.6, 95<sup>th</sup> 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= 28.8 µg/L, Acute Criteria = 48.8 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 28.8/0.550 = 52.7 µg/L WLA<sub>c</sub>= 52.4 µg/L  
Acute= 48.8/0.550 = 88.7 µg/L WLA<sub>a</sub>= 88.7 µg/L  
  
LTA<sub>c</sub>= 52.4(0.527)= **27.63** µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
LTA<sub>a</sub>= 88.7(0.321) = 28.5 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
MDL=27.6 (3.11) = 85.8 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
AML= 27.6 (1.55) = 42.8 µg/L [CV= 0.6, 95<sup>th</sup> 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= 10.7µg/L, Acute Criteria = 276 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 10.7/0.310 = 34.5 µg/L WLA<sub>c</sub>= 34.5 µg/L  
Acute=276/0.310 = 890µg/L WLA<sub>a</sub>=890 µg/L  
  
LTA<sub>c</sub>= 34.5(0.527)= **18.2** µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
LTA<sub>a</sub>= 890(0.321) = 285.7 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
MDL=18.2 (3.11) = 56.6 µg/L [CV= 0.6, 99<sup>th</sup> Percentile]  
AML= 18.2 (1.55) = 28.2 µg/L [CV= 0.6, 95<sup>th</sup> 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.
- **Nickel, Total Recoverable.** Protection of Aquatic Life Chronic Criteria= 166 µg/L, Acute Criteria = 1491 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 166/0.930 = 178 µg/L  
 Acute=1491/0.930 = 1603µg/L

WLA<sub>c</sub>= 178 µg/L  
 WLA<sub>a</sub>=1603 µg/L

LTA<sub>c</sub>= 178(0.527)= **93.8** µg/L  
 LTA<sub>a</sub>= 1603 (0.321) = 515 µg/L  
 MDL=93.8 (3.11) = 292 µg/L  
 AML= 93.8 (1.55) = 145 µg/L

[CV= 0.6, 99<sup>th</sup> Percentile]  
 [CV= 0.6, 99<sup>th</sup> Percentile]  
 [CV= 0.6, 99<sup>th</sup> Percentile]  
 [CV= 0.6, 95<sup>th</sup> Percentile, n= 4]

- **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= 374µg/L, Acute Criteria = 374 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

Chronic = 374/0.860 = 435 µg/L  
 Acute= 3747/0.860 = 435 µg/L

WLA<sub>c</sub>= 435 µg/L  
 WLA<sub>a</sub>=435 µg/L

LTA<sub>c</sub>= 435 (0.527)= 229.2 µg/L  
 LTA<sub>a</sub>= 435 (0.321) = **139.6** µg/L  
 MDL=139.6 (3.11) = 434.5 µg/L  
 AML= 139.6 (1.55) = 216.4 µg/L

[CV= 0.6, 99<sup>th</sup> Percentile]  
 [CV= 0.6, 99<sup>th</sup> Percentile]  
 [CV= 0.6, 99<sup>th</sup> Percentile]  
 [CV= 0.6, 95<sup>th</sup> Percentile, n= 4]

- **WET Test.** 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*. It is recommended that WET testing be conducted during the period of lowest stream flow.

Chronic

**No less than TWICE/YEAR:**

Facility handles large quantities of toxic substances, or substances that are toxic in large amounts. Quarterly testing from the existing permit is retained.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, streams are 100%, 50%, 25%, 12.5%, & 6.25%.

Acute WET WLA<sub>a</sub> = 0.3

A default acute to chronic ratio value of 10 is used based on the information presented in Chapter 1 and Appendix A of the TSD.

WLA<sub>a,c</sub> = WLA<sub>a</sub> × ACR, where ACR = acute-to-chronic ratio  
 WET WLA<sub>a,c</sub> = 10 (0.3TU<sub>a</sub>) = 3.0TU<sub>a,c</sub>

Chronic WET WLA<sub>c</sub> = 1.0

From this point forward, the effluent limit calculation is the same as for other parameters, such as metals. This example is for Chronic WET.

The acute WLA is converted to a long-term average concentration (LTA<sub>a,c</sub>) using the following equation:

$$LTA_{a,c} = 3.0 TU_{a,c}(0.321) = 0.963 \quad [CV = 0.6, 99^{th} \text{ Percentile}]$$

$$LTA_c = 1.0 TU_c (0.527) = 0.527 \quad [CV = 0.6, 99^{th} \text{ Percentile}]$$

Use most protective number of LTA<sub>c</sub> or LTA<sub>a</sub>. To protect a waterbody from both acute and chronic effects, the more limiting of the calculated LTA<sub>a</sub> and LTA<sub>c</sub> is used to derive the effluent limits. As shown above, the LTA<sub>c</sub> value was less than the LTA<sub>a,c</sub> value.

$$\text{WET Limit } 0.527 \text{ TU } (3.11) = 1.6 \text{ TU} \quad [CV = 0.6, 99^{th} \text{ Percentile}]$$

TABLE 5: COMPARISON OF WATER QUALITY BASED EFFLUENT LIMITS VS. CATEGORICAL LIMITS

A comparison must be made of all calculated water quality based effluent limits and categorical limits. The most protective limit appears in the permit.

Effluent Parameter	Units	WQBEL	Categorical Limit
pH	SU	<b>6.5 - 9.0</b>	6.0 - 9.0
Total Suspended Solids	mg/L	N/A	<b>30 / 20</b>
Arsenic, Total Recoverable	µg/L	<b>32.7/16.3</b>	N/A
Cadmium, Total Recoverable	µg/L	<b>1.2/0.6</b>	100 / 50
Copper, Total Recoverable	µg/L	<b>85.8/42.8</b>	300 / 150
Lead, Total Recoverable	µg/L	<b>56.6/28.2</b>	600 / 300
Mercury, Total Recoverable	µg/L	N/A	<b>2 / 1</b>
Nickel, Total Recoverable	µg/L	<b>292/145.5</b>	N/A
Zinc, Total Recoverable	µg/L	<b>434.5/216.5</b>	1,000 / 500

TABLE 6: INTERNAL MONITORING AT BRRF PRETREATMENT PLANT

As separate Effluent Limit Categories apply to the Buick Recycling Facility, an internal compliance point will be established at Buick Recycling to ensure the categorical effluent limits are met during the pretreatment phase before combining with the additional flows at Buick Mine for final treatment.

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 1)	MONITORING FREQUENCY
FLOW	MGD	*		*	N/A	ONCE/MONTH
PH - UNITS	SU	7.5-10.0		7.5-10.0	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS	mg/L	30		20	FSR	ONCE/MONTH
CHLORIDE	mg/L	*		*	WQBEL	ONCE/MONTH
SULFATE	mg/L	*		*	WQBEL	ONCE/MONTH
ANTIMONY	lbs/day	5.59		2.28	WQBEL	ONCE/MONTH
ARSENIC, TOTAL RECOVERABLE	lbs/day	4.03		1.61	TBEL	ONCE/MONTH
LEAD, TOTAL RECOVERABLE	lbs/day	2.44		1.09	TBEL	ONCE/MONTH
ZINC, TOTAL RECOVERABLE	lbs/day	8.89		3.43	TBEL	ONCE/MONTH

\* - Monitoring requirements only.

NOTE 1 --WATER QUALITY-BASED EFFLUENT LIMITATION --WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT--MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT--PEL; TECHNOLOGY-BASED EFFLUENT LIMIT--TBEL; OR NO DEGRADATION EFFLUENT LIMIT--NDEL; OR FSR --FEDERAL/STATE REGULATION; OR N/A--NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

## 10.2. *OUTFALL #001* – BRRF PRETREATMENT FACILITY OUTFALL LIMIT DERIVATION

- **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.
- **pH**. The categorical effluent limit requires a pH to be maintained in the range of seven and a half to ten (7.5-10.0) standard units.
- **Total Suspended Solids (TSS)**. The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily concentration of 127 lbs/day and a monthly average of 85 lbs/day.
- **Antimony, Total Recoverable**. The categorical effluent limit calculated in Appendix B is applicable. The antimony maximum daily concentration is 5.59 lbs/day and the monthly average is 2.28 lbs/day.
- **Arsenic, Total Recoverable**. The categorical effluent limit calculated in Appendix B is applicable. The antimony maximum daily concentration is 4.03 lbs/day and the monthly average is 1.61 lbs/day.
- **Lead, Total Recoverable** The categorical effluent limit calculated in Appendix B is applicable. The antimony maximum daily concentration is 2.44 lbs/day and the monthly average is 1.09 lbs/day.
- **Zinc, Total Recoverable**. The categorical effluent limit calculated in Appendix B is applicable. The zinc maximum daily concentration is 8.89 lbs/day and the monthly average is 3.43 lbs/day.
- **Sulfates as SO<sub>4</sub>**. Monitoring only to determine contribution from Buick Resource Recycling. Parameter identified at both Buick Resource and Buick Mine/Mill.
- **Chlorides**. Monitoring only to determine contribution from Buick Resource Recycling. Parameter identified at both Buick Resource and Buick Mine/Mill.

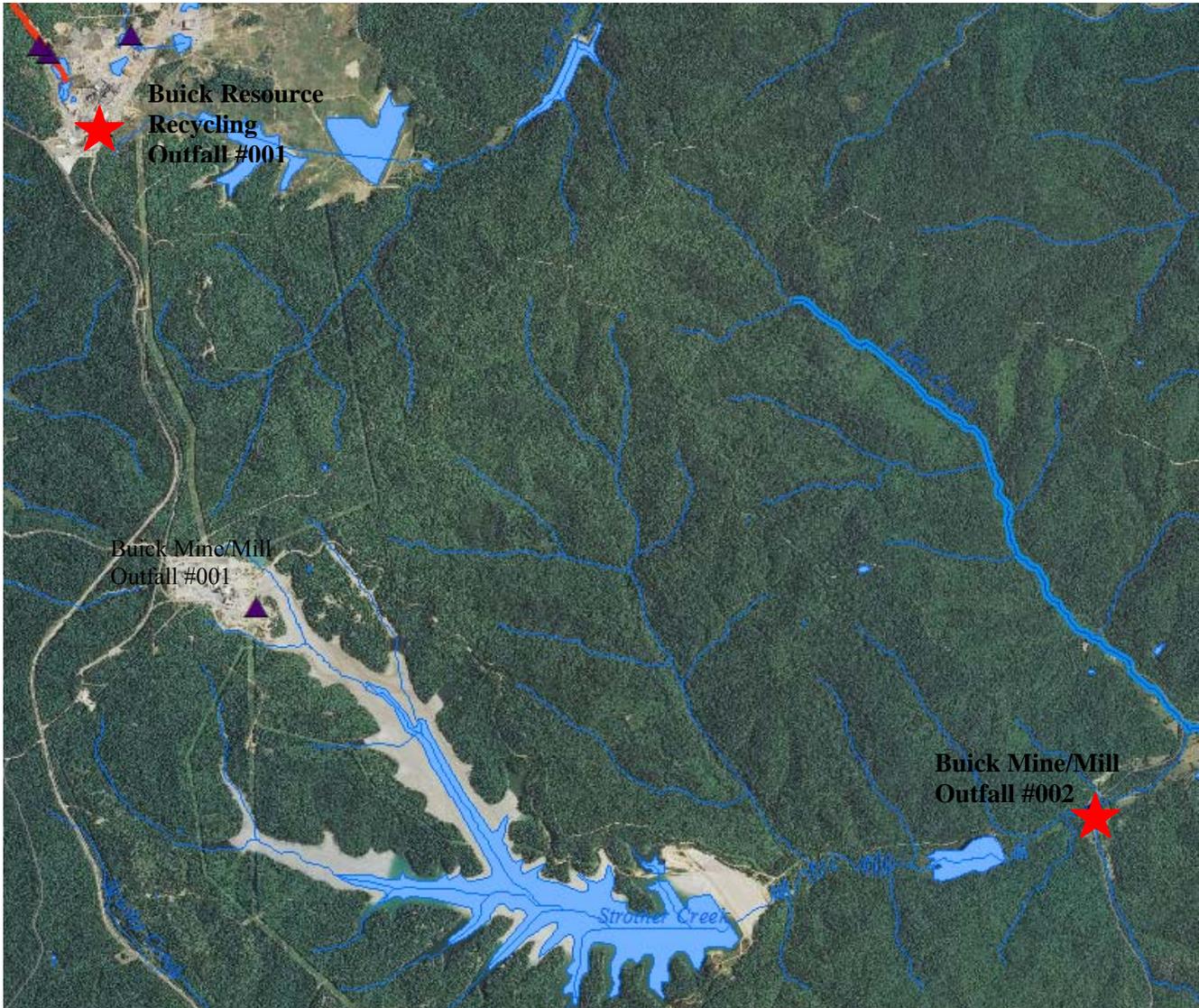
## 11. ANTIDegradation REVIEW PRELIMINARY DETERMINATION

By pumping Buick Resource Recycling Facility water to the Buick Mine/Mill, there will no longer be a discharge to Crook Creek. Also, by constructing a new wastewater treatment plant at the Buick Mine/Mill Operations, Strother Creek will experience lower pollutant loadings and water quality should improve. Therefore, the Buick Mine/Mill's new wastewater treatment process that will likely utilize chemical addition for precipitation, flocculation, and clarification and elimination of existing outfalls was determined to be the base case technology (lowest cost alternative that meets technology and water quality based effluent limitations).

Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Leasue Meyers, EIT  
Date: 08 /23/2013  
Unit Chief: John Rustige, P.E.

Appendix A: Map of Buick Resource Recycling Pretreatment Facility and Buick Mine/Mill Discharge Location



## Appendix B: Calculation of Categorical Effluent Limits at Buick Resource Recycling Facility

### Metals – Categorical limits

Categorical limits are limits on pollutants from certain industries under authorities listed in 40 CFR § 401.12. For the Secondary Lead industry, the Standards of Performance for New Sources limits are in 40 CFR §421.134. The permit limit is calculated by multiplying the regulation limit (the mass of pollutant per mass of product) by the quantity produced per day. Each process is given a limit, and the masses are added to establish the permit limit. This facility retains one process from when it was a Primary Lead Smelter, Dross Plant and Refinery Dross Wet Granulation, for which an allocation is allowed from 421.73(d).

For example:

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The maximum amount of antimony that can be released in one day is 1.299 pounds of antimony per million pounds of lead produced by battery cracking. If 0.92 millions pounds of lead are produced,

$$1.299 \times 0.92 = 1.195 \text{ lb}$$

Therefore, 1.195 lbs/day maximum of antimony can be released for this individual process.

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In addition, non-scope flows are allotted for stormwater and miscellaneous flows. The actual average flow at Outfall #001 is 0.396 MGD, or 275 gpm. Stormwater flows at the facility may account for 150 gpm or more on an annual average basis (approximately 100 acres contributing runoff, average annual precipitation of approximately 40 inches, and an average runoff coefficient of approximately 75). Other non-scope flows at the facility receiving treatment and being discharged through Outfall #001 include landfill leachate (approximately 20 gpm) and laboratory water (approximately 1 gpm). Total non-scope flows are approximately 171 gpm. Converting the flow units for Stormwater and miscellaneous flows:

Flow rate = 171 gallons per minute x 60 minutes/hour x 24 hour/day x 8.34 lb/gallon = 2,053,642 lb/day  $\approx$  **2.054 million lb/day**.

This value for flow rate is used as a multiplier in the table, Calculation of Categorical Limits. Non-scope flow concentrations are taken from Table VII-21, page 248, "Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category", Final Vol. 1, EPA 1989.

The categorical limits are mass-based, and are listed in the effluent limitation table as a mass limit in pounds per day (lb/day). The following tables summarize the calculations:

**Calculation of Categorical Limits**

NSPS limits<sup>1</sup> based on Nonferrous Metals Manufacturing Point Source Category, Secondary Lead Subcategory, 40 CFR 421.134, and Primary Lead Subcategory, 40 CFR 421.73(d)

(Paragraph)		Sb day	Sb mo	As day	As mo	Pb day	Pb mo	Zn day	Zn mo
(a)	Battery Cracking	1.299	0.579	0.936	0.384	0.189	0.087	0.687	0.283
(d)	Lead Paste Desulfurization	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(f)	Truck Wash	0.041	0.018	0.029	0.012	0.006	0.003	0.021	0.009
(g)	Facility Washdown	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(h)	Battery Case Classification	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(i)	Employee Handwash	0.052	0.023	0.038	0.015	0.008	0.004	0.028	0.011
(j)	Employee Respirator Wash	0.085	0.038	0.061	0.025	0.012	0.006	0.045	0.018
(k)	Laundering of Uniforms	0.247	0.110	0.178	0.073	0.036	0.017	0.131	0.054
	Dross Reverb Slag Granulation	0.000	0.000	0.000	0.000	219	102	797	328
non-scope	Stormwater and Miscellaneous <sup>2</sup>	1.93	0.76	1.39	0.55	0.28	0.11	1.02	0.31

**Production-based mass allowances for each operation, pounds**

Production <sup>3</sup>		Sb day	Sb mo	As day	As mo	Pb day	Pb mo	Zn day	Zn mo
0.92	Battery Cracking	1.195	0.533	0.861	0.353	0.174	0.080	0.632	0.260
0.92	Lead Paste Desulfurization	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.01	Truck Wash	0.041	0.018	0.029	0.012	0.006	0.003	0.021	0.009
1.01	Facility Washdown	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.92	Battery Case Classification	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.01	Employee Handwash	0.053	0.023	0.038	0.015	0.008	0.004	0.028	0.011
1.01	Employee Respirator Wash	0.086	0.038	0.062	0.025	0.012	0.006	0.045	0.018
1.01	Laundering of Uniforms	0.249	0.111	0.180	0.074	0.036	0.017	0.132	0.055
1.01	Dross Reverb Slag Granulation	0.000	0.000	0.000	0.000	1.628	0.755	5.932	2.442
2.0540	Stormwater and Miscellaneous <sup>2</sup>	3.964	1.561	2.855	1.130	0.575	0.226	2.095	0.637

**MO0000337 limits for each pollutant:**

	Sb day	Sb mo	As day	As mo	Pb day	Pb mo	Zn day	Zn mo
Total, lb	5.59	2.28	4.03	1.61	2.44	1.09	8.89	3.43

pH within the range of 7.5 to 10.0 at all times

1) Limits in mg/kg (pounds per million pounds) of lead produced, for any one day (day), or for monthly average (mo)

2) Laboratory, roadway washing, tire wash

3) Production, in million pounds per day, from application or supplemental information provided by permittee. For Stormwater, flow from supplemental information converted to million pounds per day.

Note: Non-scope flow concentrations from Table VII-21, page 248, "Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category," Final, Vol. 1, EPA 1989

Limits for Ammonia and TSS are developed elsewhere in the Fact Sheet.

## Appendix B: Response to Pre-public Notice Comments

Comment No. 1: On the cover page of the permit, it says that the receiving stream is a “Tributary to” Strother Creek. Is the receiving stream a tributary or the head water portion of Strother Creek? The words “tributary to” are also referenced on page 2 of the permit under the Facility Description for outfalls #001 and #002.

Response: Outfall #001 is a Tributary to Strother Creek. Outfall#002 is Strother Creek, unclassified portion. The permit has been updated to reflect that.

Comment No. 2: On page 2 under the Facility Description, the description for Outfall #002 says “in part that the wastewater undergoes subsequent treatment in a meander system and settling/clarifying basin, and then to the wastewater treatment plant.” (Emphasis added.) Please note that the wastewater treatment plant has not yet been constructed and will likely not be constructed until the year 2015. The next sentence refers to the water that is being transferred from the Buick Resource Recycling Facility. It is the Buick Resource Recycling Facility and Buick Mine’s desire to initiate transfer of the Buick Resource Recycling water to the Buick Mine as soon as possible after this Buick Mine permit is revised. Obviously the wastewater treatment plant will not yet be built when the permit is revised. Therefore, it may not be appropriate to reference the wastewater treatment plant under outfall #002 until the time when the treatment plant is built.

Response: The wastewater treatment plant was removed from the facility description, as it will not be constructed by the time this permit is issued.

Comment No. 3: On page 4, there is a table for effluent limitations for outfall #002 titled “Interim Effluent Limitations.” These effluent limitations expired two years and 364 days after the effective date of the permit. This expiration date would approximately be September 24, 2012. As you are aware, Doe Run is in the process of discussing with the Department and extension of these interim limits. Consequently, it is Doe Run’s hope that the interim limits table would be extended to a date that corresponds with the date the wastewater treatment plant will be constructed. That date is anticipated to be approximately December 15, 2015.

Response: Regarding the extension of interim effluent limits at Buick Mine, there has been ongoing conversations that will continue between the Department, EPA, and Doe Run and if agreed upon, the extension will be handled in the revised Consent Judgment. The interim effluent limits were maintained at this point for clarity that Buick Mine is not yet in compliance with the final effluent limits.

Comment No. 4: On page 10, under paragraph “D. Schedule of Compliance,” there are three numbered paragraphs. Arguably, all of these paragraphs are obsolete and could be deleted. In their place, Doe Run suggests a revised schedule of compliance to extend interim limits to approximately December 15, 2015.

Response: Paragraph D. Schedule of Compliance was deleted, as the schedule had expired. Regarding the extension of interim effluent limits at Buick Mine, there has been ongoing conversations that will continue between the Department, EPA, and Doe Run and if agreed upon, the extension will be handled in the revised Consent Judgment.

Comment No. 5: On page 1 of the Fact Sheet, there is a discussion of the “2014 Modification.” This paragraph references Doe Run’s plans to construct a wastewater treatment facility at the Buick Mine/Mill. However, it is not clear and could be presumed that Doe Run has immediate plans to construct the wastewater treatment facility that may correspond with reissuance of this proposed/revised MSOP. This paragraph could be clarified to explain that Doe Run plans to immediately transfer water from the Buick Resource Recycling Facility to the Buick Mine/Mill upon issuance of this revised permit and construction of a new wastewater treatment facility will occur at a later date.

There is another sentence in this paragraph that says “flows will be routed to Buick Mine/Mill Outfall 002.” It may be more accurate to say that flows from the Buick Resource Recycling Facility will be routed to the Buick Mine’s tailings impoundment for eventual discharge through outfall 002 which is located more than a mile downstream of the tailings impoundment.

Response: The change was made as requested.

Comment No. 6: On page 3 of the Fact Sheet there is a table for “In stream Monitoring Point.” This table references outfall 003. This outfall has been renumbered to SM1. It also refers to the outfall as being “approximately 10 yards below confluence of Strother Creek and Little Creek.” As previously noted, this stream monitoring point is located further downstream of the confluence with Little Creek.

Response: The change was made as requested.

Comment No. 7: On page 5 of the Fact Sheet there is a “discussion of the Schedule of Compliance.” As discussed above, Doe Run suggests revising the Schedule of Compliance described on page 10 of the permit to reflect a revised schedule for interim limits and construction of the wastewater treatment facility.

Response: Regarding the extension of interim effluent limits at Buick Mine, there has been ongoing conversations that will continue between the Department, EPA, and Doe Run and if agreed upon, the extension will be handled in the revised Consent Judgment. The following statement was added to the Schedule of Compliance discussion on page 5 of the fact sheet: “The schedule of compliance originally issued for this facility has expired; however Doe Run is working with the Department and EPA on extending the schedule to allow additional time for compliance. If agreed upon, the additional time will be reflected in the revised Consent Judgment. “

Comment No. 8: The Buick Mine has a new 911 address. Therefore, please update the Facility Address to:  
270 Forest Road 2231  
Highway KK  
Boss, MO 65440

Response: The change was made as requested.

Comment No. 9: For many years, Doe Run Buick Mine has sampled SM1 (in-stream monitoring point) approximately ½ mile downstream of the confluence with Little Creek (see map below for sampling location). The former (current) permit includes only a legal description of this sampling location. There was no narrative description of the sampling location. However, in the draft permit, there is a new description for this outfall which says: “Approximately 10 yards below confluence of Strother Creek and Little Creek.” This is inaccurate. We have permission from the landowner to sample here and it is the first point of access to Strother Creek after the confluence of Little Creek. We do not have access or permission to sample directly below confluence of Strother Creek and Little Creek. Although the creek is near the gravel road most of the way to where we sample, there are drop-offs, thickets, etc. between the creek and the road so it is inaccessible. We suggest the narrative description of SM1 read as follows: “Strother Creek approximately 0.4 miles downstream of the confluence of Little Creek.”

Response: The change was made as requested.

## APPENDIX C: RESPONSE TO PUBLIC NOTICE COMMENTS

The only comments received were from EPA Region 7.

Comment No. 1: Chronic toxicity limits are in the permit, which is good. The TUC requirement is a limit, but it would be preferable if the TUC limit (1.6 TUC) was clearly stated on the limits page.

Response No. 1: The WET test chronic toxicity limit has been added to the limits page.

Comment No. 2: I have some concern with the monitoring approach for the new facility. The permit requires a monthly grab. The existing facility is a large holding ponds with a meander system prior to discharge. With that system there would be low effluent variability. With low effluent variability, a low frequency and grab samples made sense.

The new plant will be a physical-chemical treatment facility. These types of facilities have short residence times and can have variable performance if not run carefully. With this mind, samples should be 24 hour composites at least once or twice per week. Since there will be a new facility, there should be no problem in housing the sampler. Representative monitoring is a basic.

Response No. 2: The new physical-chemical treatment facility has not been constructed yet. While the permit modification did include the Antidegradation Review for the expanded flows from Buick Recycle Resource Facility and for the new treatment plant; at this time only the expanded flows from Buick Recycle Resource Facility are being added. When the new treatment plant is constructed or at renewal, the Department will evaluate the monitoring frequency and/or sampling type to ensure representative sampling occurs.

**STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION**

**Revised  
October 1, 1980**

**PART I - GENERAL CONDITIONS  
SECTION A - MONITORING AND REPORTING**

**1. Representative Sampling**

- a. Samples and measurements taken as required herein shall be representative of the nature and volume, respectively, of the monitored discharge. All samples shall be taken at the outfall(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
- b. Monitoring results shall be recorded and reported on forms provided by the Department, postmarked no later than the 28th day of the month following the completed reporting period. Signed copies of these, and all other reports required herein, shall be submitted to the respective Department Regional Office, the Regional Office address is indicated in the cover letter transmitting the permit.

**2. Schedule of Compliance**

No later than fourteen (14) calendar days following each date identified in the "Schedule of Compliance", the permittee shall submit to the respective Department Regional Office as required therein, either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements, or if there are no more scheduled requirements, when such noncompliance will be corrected. The Regional Office address is indicated in the cover letter transmitting the permit.

**3. Definitions**

Definitions as set forth in the Missouri Clean Water Law and Missouri Clean Water Commission Definition Regulation 10 CSR 20-2.010 shall apply to terms used herein.

**4. Test Procedures**

Test procedures for the analysis of pollutant shall be in accordance with the Missouri Clean Water Commission Effluent Regulation 10 CSR 20-7015.

**5. Recording of Results**

- a. For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
  - (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. 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 this permit 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 both.
- c. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

**6. Additional Monitoring by Permittee**

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monitoring Report Form. Such increased frequency shall also be indicated.

**7. Records Retention**

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recording for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this 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.

**SECTION B - MANAGEMENT REQUIREMENTS**

**1. Change in Discharge**

- a. All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant not authorized by this permit or any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.
- b. Any facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants shall be reported by submission of a new NPDES application at least sixty (60) days before each such change, or, if they will not violate the effluent limitations specified in the permit, by notice to the Department at least thirty (30) days before such changes.

**2. Noncompliance Notification**

- a. If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Department with the following information, in writing within five (5) days of becoming aware of such conditions:
  - (i) a description of the discharge and cause of noncompliance, and
  - (ii) the period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.
- b. Twenty-four hour reporting. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally with 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided with five (5) days of the time the permittee becomes aware of the circumstances. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

**3. Facilities Operation**

Permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions. Operators or supervisors of operations at publicly owned or publicly regulated wastewater treatment facilities shall be certified in accordance with 10 CSR 209.020(2) and any other applicable law or regulation. Operators of other wastewater treatment facilities, water contaminant source or point sources, shall, upon request by the Department, demonstrate that wastewater treatment equipment and facilities are effectively operated and maintained by competent personnel.

**4. Adverse Impact**

The permittee shall take all necessary steps to minimize any adverse impact to waters of the state resulting from noncompliance with any effluent limitations specified in this permit or set forth in the Missouri Clean Water Law and Regulations (hereinafter the Law and Regulations), including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

- a. Any bypass or shut down of a wastewater treatment facility and tributary sewer system or any part of such a facility and sewer system that results in a violation of permit limits or conditions is prohibited except:
    - (i) where unavoidable to prevent loss of life, personal injury, or severe property damages; and
    - (ii) where unavoidable excessive storm drainage or runoff would catastrophically damage any facilities or processes necessary for compliance with the effluent limitations and conditions of this permit;
    - (iii) where maintenance is necessary to ensure efficient operation and alternative measures have been taken to maintain effluent quality during the period of maintenance.
  - b. The permittee shall notify the Department in writing of all bypasses or shut down that result in a violation of permit limits or conditions. This section does not excuse any person from liability, unless such relief is otherwise provided by the statute.
6. **Removed Substances**  
Solids, sludges, filter backwash, or any other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutants from entering waters of the state unless permitted by the Law, and a permanent record of the date and time, volume and methods of removal and disposal of such substances shall be maintained by the permittee.
  7. **Power Failures**  
In order to maintain compliance with the effluent limitations and other provisions of this permit, the permittee shall either:
    - a. in accordance with the "Schedule of Compliance", provide an alternative power source sufficient to operate the wastewater control facilities; or,
    - b. if such alternative power source is not in existence, and no date for its implementation appears in the Compliance Schedule, halt or otherwise control production and all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.
  8. **Right of Entry**  
For the purpose of inspecting, monitoring, or sampling the point source, water contaminant source, or wastewater treatment facility for compliance with the Clean Water Law and these regulations, authorized representatives of the Department, shall be allowed by the permittee, upon presentation of credentials and at reasonable times;
    - a. to enter upon permittee's premises in which a point source, water contaminant source, or wastewater treatment facility is located or in which any records are required to be kept under terms and conditions of the permit;
    - b. to have access to, or copy, any records required to be kept under terms and conditions of the permit;
    - c. to inspect any monitoring equipment or method required in the permit;
    - d. to inspect any collection, treatment, or discharge facility covered under the permit; and
    - e. to sample any wastewater at any point in the collection system or treatment process.
  9. **Permits Transferable**
    - a. Subject to Section (3) of 10 CSR 20-6.010 an operating permit may be transferred upon submission to the Department of an application to transfer signed by a new owner. Until such time as the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
    - b. The Department, within thirty (30) days of receipt of the application shall notify the new permittee of its intent to revoke and reissue or transfer the permit.
  10. **Availability of Reports**  
Except for data determined to be confidential under Section 308 of the Act, and the Law and Missouri Clean Water Commission Regulation for Public Participation, Hearings and Notice to Governmental Agencies 10 CSR 20-6.020, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by statute, effluent data shall not be considered confidential. Knowingly making any false statement on any such report shall be subject to the imposition of criminal penalties as provided in Section 204.076 of the Law.
  - 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) violation 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 and 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.
12. **Permit Modification - Less Stringent Requirements**  
If any permit provisions are based on legal requirements which are lessened or removed, and should no other basis exist for such permit provisions, the permit shall be modified after notice and opportunity for a hearing.
  13. **Civil and Criminal Liability**  
Except as authorized by statute and provided in permit conditions on "Bypassing" (Standard Condition B-5) and "Power Failures" (Standard Condition B-7) nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.
  14. **Oil and Hazardous Substance Liability**  
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, and the Law and Regulations. Oil and hazardous materials discharges must be reported in compliance with the requirements of the Federal Clean Water Act.
  15. **State Laws**  
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state statute or regulations.
  16. **Property Rights**  
The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of or violation of federal, state or local laws or regulations.
  17. **Duty to Reapply**  
If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit 180 days prior to expiration of this permit.
  18. **Toxic Pollutants**  
If a toxic effluent standard, prohibition, or schedule of compliance is established, under Section 307(a) of the Federal Clean Water Act for a toxic pollutant in the discharge of permittee's facility and such standard is more stringent than the limitations in the permit, then the more stringent standard, prohibition, or schedule shall be incorporated into the permit as one of its conditions, upon notice to the permittee.
  19. **Signatory Requirement**  
All reports, or information submitted to the Director shall be signed (see 40 CFR-122.6).
  20. **Rights Not Affected**  
Nothing in this permit shall affect the permittee's right to appeal or seek a variance from applicable laws or regulations as allowed by law.
  21. **Severability**  
The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

**STANDARD CONDITIONS FOR NPDES PERMITS  
ISSUED BY  
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MISSOURI CLEAN WATER COMMISSION  
AUGUST 15, 1994**

**PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES**

**SECTION A – GENERAL REQUIREMENTS**

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation and incorporates applicable federal sludge disposal requirements under 40 CFR 503. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFS 503 until such time as Missouri is delegated the new EPA sludge program. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Sludge and Biosolids Use and Disposal Practices.
  - a. Permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
  - b. Permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
  - c. Permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
  - d. A separate operating permit is required for each operating location where sludge or biosolids are generated, stored, treated, or disposed, unless specifically exempted in this permit or in 10 CSR 20, Chapter 6 regulations. For land application, see section H, subsection 3 of these standard conditions.
4. Sludge Received From Other Facilities
  - a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
  - b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge.
  - c. Sludge received from out-of-state generators shall receive prior approval of the permitting authority and shall be listed in the facility description or special conditions section of the permit.
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after du process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RsMo.
8. In addition to the STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of this permit.
9. Alternate Limits in Site Specific Permit.

Where deemed appropriate, the department may require an individual site specific permit in order to authorize alternate limitations:

  - a. An individual permit must be obtained for each operating location, including application sites.
  - b. To request a site specific permit, an individual permit application, permit fees, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the department, as follows:
  - a. The department will prepare a permit modification and follow permit public notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owners of property located adjacent to each land application site, where appropriate.
  - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.
11. Compliance Period  
Compliance shall be achieved as expeditiously as possible but no later than the compliance dates under 40 CFR 503.2.

## **SECTION B – DEFINITIONS**

1. Biosolids means an organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge. Untreated sludge or sludge that does not conform to the pollutants and pathogen treatment requirements in this permit is not considered biosolids.
2. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
3. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
4. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
5. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a public owned treatment works (POTW) or privately owned facility.
6. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include unaerated wastewater treatment lagoons and constructed wetlands for wastewater treatment.
7. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
8. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the next growing season after biosolids application.
9. Sinkhole is a depression in the land surface into which surface water flows to join an underground drainage system.
10. Site Specific Permit is a permit that has alternate limits developed to address specific site conditions for each land application site or storage site.
11. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks.
12. Sludge lagoon is an earthen basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
13. Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas. Wetlands do not include constructed wetlands used for wastewater treatment.

## **SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES**

1. Sludge shall be routinely removed from the wastewater treatment facilities and handled according to the permit facility description and sludge conditions in this permit.
2. The permittee shall operate the facility so that there is no sludge loss into the discharged effluent in excess of permit limits, no sludge bypassing, and no discharge of sludge to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

## **SECTION D – SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR CONTRACT HAULER**

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the department; or the hauler transports the sludge to another permitted treatment facility.
3. The permittee shall require documentation from the contractor of the disposal methods used and permits obtained by the contractor.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility.

## **SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS**

1. Sludge that is retained within a wastewater treatment lagoon is subject to sludge disposal requirements when the sludge is removed from the lagoon or when the lagoon ceases to receive and treat wastewater.
2. If sludge is removed during the year, an annual sludge report must be submitted.
3. Storm water retention basins or other earthen basins, which have been used as sludge storage for a mechanical treatment system is considered a sludge lagoon and must comply with Section G of this permit.

## **SECTION F – INCINERATION OF SLUDGE**

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or if the ash is determined to be hazardous waste, shall be disposed in accordance with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored; and ash use or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.
4. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions sections of this permit.

## **SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS**

1. Surface disposal sites shall comply with the requirements in 40 CFR 503 Subpart C, and solid waste disposal regulations under 10 CSR 80.
2. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions section of this permit.
3. Effective February 19, 1995, a sludge lagoon that has been in use for more than two years without removal of accumulated sludge, or that has not been properly closed shall comply with one of the following options:
  - a. Permittee shall obtain a site specific permit to address surface disposal requirements under 40 CFR 503, ground water quality regulations under 10 CSR 20, Chapter 7 and 8, and solid waste management regulations under 10 CSR 80;
  - b. Permittee shall clean out the sludge lagoon to remove any sludge over two years old and shall continue to remove accumulated sludge at least every two years or an alternate schedule approved under 40 CFR 503.20(b). In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of sludge on the bottom of the lagoon, upon prior approval of the department; or
  - c. Permittee shall close the lagoon in accordance with Section 1.

## **SECTION H – LAND APPLICATION**

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the Facility Description or special conditions section of the permit.
2. This permit replaces and terminates all previous sludge management plan approvals by the department for land application of sludge or biosolids.
3. Land application sites within a 20 mile radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless a site specific permit is required under Section A, Subsection 9.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
  - a. This permit does not authorize the land application of sludge except when sludge meets the definition of biosolids.
  - b. This permit authorizes “Class A or B” biosolids derived from domestic wastewater sludges to be land applied onto grass land, crop land, timber land or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
5. Public Contact Sites.  
Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the department. Applications for approval shall be in the form of an engineering report and shall address priority pollutants and dioxin concentrations. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site-specific permit.

6. Agricultural and Silvicultural Sites.

In addition to specified conditions herein, this permit is subject to the attached Water Quality Guides numbers WQ 422 through 426 published by the University of Missouri, and hereby incorporated as though fully set forth herein. The guide topics are as follows:

WQ 422	Land Application of Septage
WQ 423	Monitoring Requirements for Biosolids Land Application
WQ 424	Biosolids Standards for Pathogens and Vectors
WQ 425	Biosolids Standards for Metals and Other Trace Substances
WQ 426	Best Management Practices for Biosolids Land Applications

### SECTION I – CLOSURE REQUIREMENTS

1. This section applies to all wastewater treatment facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees who plan to cease operation must obtain department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids, and ash. Permittee must maintain this permit until the facility is properly closed per 10 CSR 20-6.010 and 10 CSR 20-6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure shall not exceed the agricultural loading rates as follows:
  - a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
  - b. If a wastewater treatment lagoon has been in operation for 15 years or more, the sludge in the lagoon qualifies for Class B with respect to pathogens (see WQ 424, Table 3), and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B limitations. See WQ 423 and 424.
  - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. See WQ 426 for calculation procedures. For a grass cover crop, the allowable PAN is 300 pounds/acre.
4. When closing a wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works” definition. See WQ 422. Under the septage category, residuals may be left in place as follows:
  - a. Testing for metals or fecal coliform is not required.
  - b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at the rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
  - c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If more than 100 dry tons/acre will be left in the lagoon, test for nitrogen and determine the PAN in accordance with WQ 426. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berms shall be demolished, and the site shall be graded and vegetated so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoon closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed five acres in accordance with 10 CSR 20-6.200.
7. If sludge exceeds agricultural loading rates under Section H or I, a landfill permit or solid waste disposal permit shall be obtained to authorize on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

### SECTION J – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed.
2. Testing for land application is listed under Section H, Subsection 6 of these standard conditions (see WQ 423). Once per year is the minimum test frequency. Additional testing shall be performed for each 100 dry tons of sludge generated or stored during the year.
3. Additional testing may be required in the special conditions or other sections of the permit. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the department.
4. Monitoring requirements shall be performed in accordance with, “POTW Sludge Sampling and Analysis Guidance Document”, United States Environmental Protection Agency, August 1989, and subsequent revisions.

## SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in these Standard Conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting Period
  - a. By January 28<sup>th</sup> of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
  - b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
4. Report shall be submitted as follows:  
Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the department and EPA. Other facilities need to report only to the department. Reports shall be submitted to the addresses listed as follows:

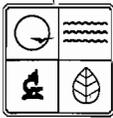
DNR regional office listed in your permit  
(See cover letter of permit)

EPA Region VII  
Water Compliance Branch (WACM)  
Sludge Coordinator  
901 N 5<sup>th</sup> Street  
Kansas City, KS 66101

5. Annual Report Contents. The annual report shall include the following:
  - a. Sludge/biosolids testing performed. Include a copy or summary of all test results, even if not required by this permit.
  - b. Sludge or Biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at end of year, and the quantity used or disposed.
  - c. Gallons and % solids data used to calculate the dry ton amounts.
  - d. Description of any unusual operating conditions.
  - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
    - (1) This must include the name, address and permit number for the hauler and the sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name and permit number of that facility.
    - (2) Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
  - f. Contract Hauler Activities.  
If contract hauler, provide a copy of a signed contract or billing receipts from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge disposal or biosolids use permit.
  - g. Land Application Sites.
    - (1) Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as legal description for nearest ¼, ¼, Section, Township, Range, and County, or as latitude and longitude.
    - (2) If biosolids application exceeds 2 dry tons/acre/year, report biosolids nitrogen results. Plant Available Nitrogen (PAN) in pounds/acre, crop nitrogen requirement, available nitrogen in the soil prior to biosolids application, and PAN calculations for each site.
    - (3) If the “Low Metals” criteria is exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative loading which has been reached at each site.
    - (4) Report the method used for compliance with pathogen and vector attraction requirements.
    - (5) Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

RECEIVED

API 10850



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH
FORM A - APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT
UNDER MISSOURI CLEAN WATER LAW

FOR AGENCY USE ONLY
CHECK NUMBER 705913
DATE RECEIVED 11/11/13
FEE SUBMITTED \$1250.00

SB

Note PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM.

- 1. This application is for:
[ ] An operating permit and antidegradation review public notice
[ ] A construction permit following an appropriate operating permit and antidegradation review public notice
[ ] A construction permit and concurrent operating permit and antidegradation review public notice
[ ] A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required)
[ ] An operating permit for a new or unpermitted facility
[ ] An operating permit renewal: permit # MO-
[ ] An operating permit modification: permit # MO-0002003 Reason: ANTIDEG. REVIEW

1.1 Is the appropriate fee included with the application? (See instructions for appropriate fee) [ ] YES [ ] NO

2. FACILITY

NAME !! FORMTEXT THE DOE RUN COMPANY - BUICK MINE/MILL
TELEPHONE WITH AREA CODE 573/626-4855
FAX 573/626-4667
ADDRESS (PHYSICAL) 270 FOREST ROAD 2231, HWY. KK
CITY BOSS
STATE MO ZIP CODE 65440

3. OWNER

NAME THE DOE RUN RESOURCES CORP. D/B/A THE DOE RUN CO.
E-MAIL ADDRESS MCUMMINGS@DOERUN.COM
TELEPHONE WITH AREA CODE 314/453-7630
FAX 314/453-7177
ADDRESS (MAILING) 1801 PARK 270 DRIVE
CITY ST. LOUIS
STATE MO ZIP CODE 63146

3.1 Request review of draft permit prior to public notice? [x] YES [ ] NO

4. CONTINUING AUTHORITY

NAME SAME AS OWNER
TELEPHONE WITH AREA CODE
FAX
ADDRESS (MAILING)
CITY
STATE ZIP CODE

5. OPERATOR

NAME SAME AS OWNER
CERTIFICATE NUMBER
TELEPHONE WITH AREA CODE
FAX
ADDRESS (MAILING)
CITY
STATE ZIP CODE

6. FACILITY CONTACT

NAME MARK CUMMINGS
TITLE ENVIRONMENTAL MANAGER
TELEPHONE WITH AREA CODE 573/244-8152
FAX 573/244-8179

7. ADDITIONAL FACILITY INFORMATION

7.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)

001 SE 1/4 SE 1/4 Sec 26 T 34N R 2W IRON County
UTM Coordinates Easting (X): 664501.50 m E Northing (Y): 4167428.47 m N
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

002 NW 1/4 NW 1/4 Sec 4 T 33N R 1W REYNOLDS County
UTM Coordinates Easting (X): 665082.63 m E Northing (Y): 4167457.80 m N

003 1/4 1/4 Sec T R County
UTM Coordinates Easting (X): Northing (Y):

004 1/4 1/4 Sec T R County
UTM Coordinates Easting (X): Northing (Y):

7.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.

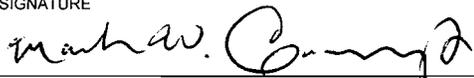
001 - SIC 1031 and NAICS 212231 002 - SIC 1031 and NAICS 212231
003 - SIC and NAICS 004 - SIC and NAICS

<b>8. ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION</b> (Complete all forms that are applicable.)			
A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C (unless storm water only, then complete U.S. Environmental Protection Agency Form 2F per Item C below).	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
B.	Is your facility considered a "Primary Industry" under EPA guidelines? If yes, complete Forms C and D.	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
C.	Is application for storm water discharges only? If yes, complete EPA Form 2F.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
D.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		
E.	Is wastewater land applied? If yes, complete Form I.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
F.	Is sludge, biosolids, ash or residuals generated, treated, stored or land applied? If yes, complete Form R.	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>

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

NAME CHARLES NELSON			
ADDRESS 4243 COUNTY ROAD 836	CITY BLACK	STATE MO	ZIP CODE 63625

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

NAME AND OFFICIAL TITLE (TYPE OR PRINT) MARK CUMMINGS, ENVIRONMENTAL MANAGER	TELEPHONE WITH AREA CODE 573/244-8152
SIGNATURE 	DATE SIGNED 10/31/13

MO 780-1479 (01-09)

**BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.**  
Submittal of an incomplete application may result in the application being returned.

HAVE YOU INCLUDED:

- Appropriate Fees?
- Map at 1" = 2000' scale?
- Signature?
- Form C, if applicable?
- Form D, if applicable?
- Form 2F, if applicable?
- Form I (Irrigation), if applicable?
- Form R (Sludge), if applicable?

**INSTRUCTIONS FOR COMPLETING FORM A  
APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT**

1. Check which option is applicable. **Do not check more than one item.** Construction and operating permit refer to permits issued by the Department of Natural Resources' Water Protection Program, Water Pollution Control Branch. Effective Sept. 1, 2008, a facility will be required to use **MISSOURI'S ANTIDEGRADATION RULE AND IMPLEMENTATION PROCEDURE**. For more information, this document can be reviewed at [www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf](http://www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf). This procedure will be applicable to new and expanded wastewater facilities and requires the proposed discharge to a water body to undergo a level of Antidegradation Review, which documents that the use of a water body's available assimilative capacity is justified.

- 1.1 An operating permit and antidegradation review public notice requires a Water Quality/Antidegradation Review Sheet to be submitted with the application (No fee required).

**CONSTRUCTION PERMIT FEES**

- A. \$750 for a sewage treatment facility with a design flow of less than 500,000 gallons per day.  
B. \$2,200 for a sewage treatment facility with a design flow of 500,000 gallons per day or more.

Different application and construction fees are applicable if only sewer and/or lift stations are to be constructed.

**OPERATING PERMIT FEES**

**If the application is for a site-specific permit re-issuance, send no fees..** You will be invoiced separately by the department.

Discharges covered by section 644.052.4 RSMo. (Primary or Categorical Facilities)

- \$3,500 for a design flow under 1 mgd  
\$5,000 for a design flow of 1 mgd or more

- A. Discharges covered by section 644.052.5 RSMo. (Secondary or Non-Categorical Facilities).

- \$1,500 for a design flow under 1 million gallons per day (mpg)  
\$2,500 for a design flow of 1 mgd or more

**SITE-SPECIFIC STORM WATER DISCHARGE FEES**

- A. \$1,350 for a design flow under 1 mgd.  
B. \$2,350 for a design flow of 1 mgd or more.

OPERATING PERMIT MODIFICATIONS, including transfers, are subject to the following fees:

- A. Municipals - \$200 each.  
B. All others - 25 percent of annual fee.

Note: Facility name and address changes where owner, operator and continuing authority remain the same are not considered transfers.

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.

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.
- 3.1 Prior to submitting a permit to public notice, the department shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice. Check YES to review the draft permit prior to public notice. Check NO to waive the process and expedite the permit.
4. Continuing Authority - Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf) or contact the appropriate Department of Natural Resources Regional Office.
5. Operator - Provide the name, certificate number and telephone number of the person operating the facility.
6. Provide the name, title and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department, if necessary.
- 7.1 An outfall is the point at which wastewater 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 that 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; the department's mapping system is available at [www.dnr.mo.gov/internetmapviewer/](http://www.dnr.mo.gov/internetmapviewer/).
- 7.2 List only your primary Standard Industrial Classification, or SIC, and North American Industry Classification System 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.
- 7.3 573-751-3215. 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 is on the Web for Standard Industrial Codes at [www.osha.gov/pls/imis/sicsearch.html](http://www.osha.gov/pls/imis/sicsearch.html) and for the North American Industry Classification System at [www.census.gov/naics](http://www.census.gov/naics) or contact the appropriate Department of Natural Resources Regional Office.

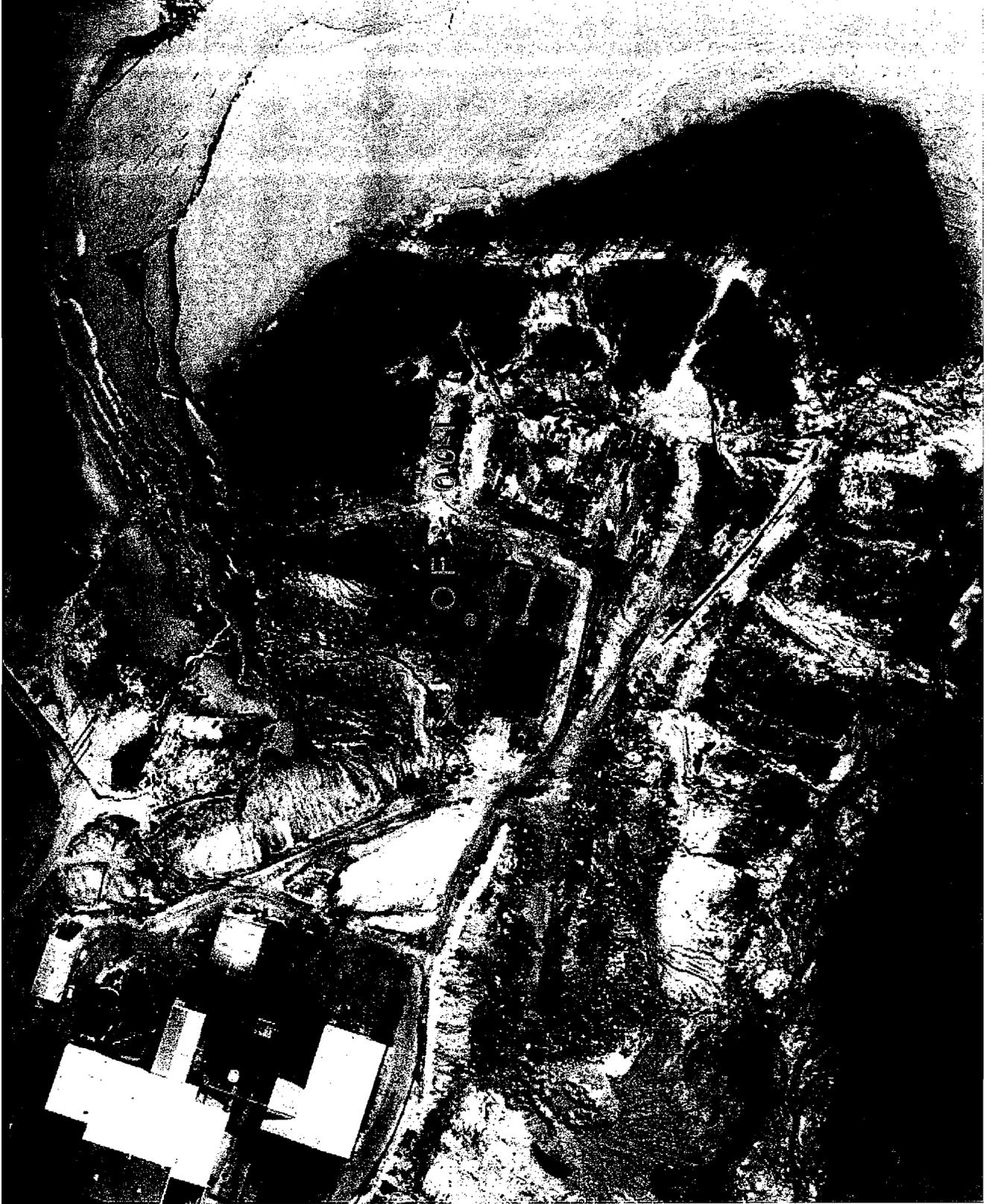
**INSTRUCTIONS FOR COMPLETING FORM A  
APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT  
(CONTINUED)**

8. If you answer yes to A, B, C, D, E or F, then you must complete and file the supplementary form(s) indicated. 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 is available on the Web at [www.dnr.mo.gov/internetmapviewer/](http://www.dnr.mo.gov/internetmapviewer/) or from the Missouri Department of Natural Resources' Division of Geology and Land Survey in Rolla at 573-368-2125.
9. 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.
10. 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.

This completed form, along with the applicable permit fees, should be submitted to the appropriate Regional Office. Submittal of an incomplete application may result in the application being returned. A map of the department's regional offices with addresses and phone numbers can be viewed on the Web at [www.dnr.mo.gov/regions/ro-map.pdf](http://www.dnr.mo.gov/regions/ro-map.pdf). If there are any questions concerning this form, contact the appropriate Regional Office or the Department of Natural Resources' Water Protection Program, Water Pollution Control Branch, Permits and Engineering Section at 573-751-6825.

# Doe Run Resources - Environmental Surface Features Map

*Buick Mine / Mill - NPDES Outfall Locations*



DOE RUN



Legend

0

1000 Feet

1:25000

1988

DOE RUN

BUICK MINE

NPDES OUTFALL LOCATIONS

DOE RUN

BUICK MINE

NPDES OUTFALL LOCATIONS

# Doe Run Resources - Environmental Surface Features Map

## Buick Mine / Mill - NPDES Outfall Locations



DOE RUN  
RESOURCES

**DOE RUN**

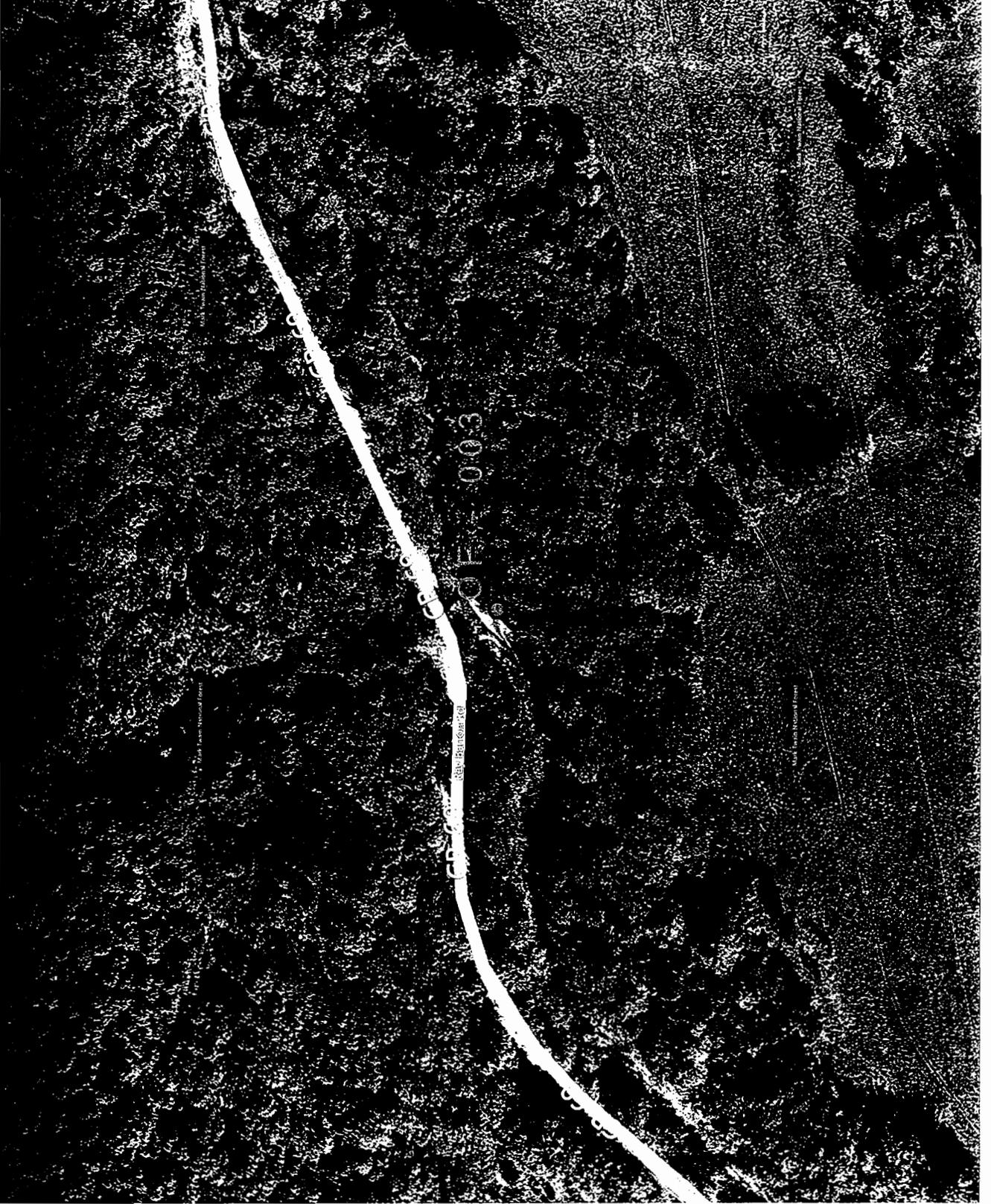


DATE: 10/15/2014  
TIME: 10:15:00 AM  
PROJECT: DOE RUN  
MAP: NPDES OUTFALL LOCATIONS

Legend 

# Doe Run Resources - Environmental Surface Features Map

## Buick Mine / Mill - NPDES Outfall Locations



DOE RUN

DOE RUN



Legend

Legend