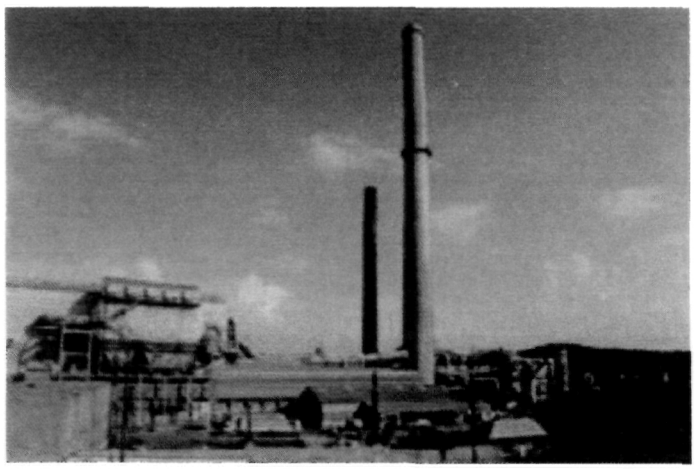
FIELD SAMPLING PLAN
OTHER AREAS EVALUATION
DOE RUN RESOURCES CORPORATION
HERCULANEUM, MISSOURI
REVISION 0



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3.3.3 Sampling Strategy

As with the old slag pile area, prior to conducting any surface water sampling, the area around the interim slag storage area will be evaluated and all possible drainage pathways leading from the interim slag storage area will be identified. This evaluation will consist of a topographical survey of the area along with field reconnaissance during or immediately following a significant rainfall event to identify the drainage pathways. Then, based upon the surface water drainage pathway evaluation, suitable surface water sampling locations will be identified. For planning purposes, it is assumed that this surface water sampling event will encompass the collection of samples at an estimated four sampling locations dependent upon identified drainage pathways.

3.3.4 Surface Water Sampling Requirements

A total of four surface water samples are to be collected as part of this evaluation of the interim slag storage area to assess whether the slag in the interim storage area is impacting the surrounding environment. This is to be a one time sampling event to be conducted immediately following a significant rainfall event. Surface water samples collected during this evaluation will be submitted to a contracted laboratory for SVOCs and TLA metals. Quality Control (QC) samples are to be collected at a frequency of 20%, field blanks, and equipment rinseate blanks are to be collected at a frequency of 10%. A summary of the quantity of primary and duplicate samples is presented in Table 3-3.

TABLE 3-3
SURFACE WATER SAMPLING REQUIRMENTS

PARAMETER	PRIMARY SAMPLES	QC SAMPLES	FIELD BLANKS	EQUIP. BLANKS	TRIP BLANKS
SVOCs	4	1	1	1	0
TAL Metals	4	1	1	1	0

3.3.5 Sampling Procedures

Details on the collection of surface water samples at the interim slag storage area is presented in the next section of this Field Sampling Plan (Section 4.0). In addition to the collection of surface

water samples at each of the sampling locations identified in the drainage pathway evaluation, field measured parameters including, temperature, pH and specific conductivity will be recorded, along with the date, time and amount of rainfall which proceeded this sampling event. Additional sampling procedures are presented in the previously prepared Groundwater Monitoring Plan (Jacobs, 2001) and the Sampling and Analysis Plan for the Slag Investigation (ELM Consultants, 2001). Other Applicable specific Work Instruction (SOPs) included in Appendix III, Part II "Field Sampling Plan" of the Groundwater Monitoring Plan include:

- WI-025 Environmental Sample Management
- WI-026 Chain-of-Custody Forms
- WI-027 Project Administration, Packaging. And Shipping Environmental Samples
- WI-035 Field Logbooks
- WI-036 Equipment Decontamination Procedures

3.4 SOLVENT USE AREA

3.4.1 Description

Historically solvent use at the facility has been limited to small parts washing activities at the maintenance shops and associated garages situated through out the facility. All of the old solvent based parts washers have been removed from the facility and replaced with washers maintained by Safety Clean and use an environmental friendly material called Zep®. At present, parts washing activities are limited to the Maintenance Shop (two parts washers), the garage (one parts washer) and the Lead Storage Building (one parts washer).

3.4.2 Sampling Rational

Based upon the limited use or solvents and no indications of accidental releases or spills, no specific sampling activity associated with past solvent use is included in this Field Sampling Plan.

3.5 FORMER FUEL STORAGE TANKS

3.5.1 Description

A total of 9 fuel storage tanks have been identified at the Doe Run facility. One large above ground tank is located at the north end of the facility by the acid storage tank. This large above ground was originally designed to hold diesel fuel back in the late 1980s. This tank has subsequently been cleaned and reconfigured and presently is used for acid storage.
Other above ground storage tanks include; a diesel tank adjacent to the barge unloading conveyer, a diesel tank south of the water treatment plant, a gasoline and diesel tank on the north side of the garage area, and a diesel tank west of the lead dock. In addition to the above ground fuel storage tanks, three UST's are situated around the facility. All tank locations are depicted on Figure 2-2.

Two of the three UST's present at the Doe Run Facility are located adjacent to the garage area and were formerly used for the storage of gasoline and diesel. These tanks were pumped out by the vender and abandoned in place. The other UST at the facility is a fiberglass UST situated by the railroad tracks near the Lead Storage Building. This tank was also taken out of service back in 1986, and pumped out the vendor and abandoned in place. None of these fuel storage tanks have had any indications of a release having taken place. Presently all fuel storage tanks in use at the Doe Run Facility are situated above ground.

3.5.2 Sampling Strategy

Based on no indication of any historic releases stemming from any of the fuel storage tanks operated at the Doe Run facility, and that all fuel stored at the facility is currently in an above ground storage tank, no sampling associated with fuel storage tanks is addressed in this Field Sampling Plan.

3.6 WASTE WATER TREATMENT PLANT

3.6.1 Description

The Waste Water Treatment Plant (WWTP) at the Doe Run facility is located in the northern portion of the facility, see Figure 2-2. This WWTP was designed and built to treat industrial

process wastewater generated at the plant and process stormwater prior to discharge from the facility grounds. The WWTP has a design capacity of 1,152,000 gallons per day utilizing a process treatment train consisting of flocculation and neutralization followed by sedimentation and sand/anthracite filtration then clarification prior to discharge.

Discharge from the WWTP empties in to the Mississippi river through outfall #001 which is one of three outfalls permitted under Doe Run's Missouri State Operating Permit (no. MO-0000281) issued by the Missouri Department of Natural Resources dated November 9, 1995. A complete copy of the permit is present in Appendix I of this plan.

Outfall #002 if designated as an emergency stormwater overflow. Discharges from this outfall receive no treatment prior to discharge. This outfall is used only when required. The last outfall, Outfall #003, is associated with the Acid plant and discharges non-contact cooling water. This discharged receives no treatment as it is non-contact cooling water. The design flow from this outfall is 2.33 MGD.

3.6.2 Sampling Rational

Based upon a review of past monthly sampling reports dating back to January 2001 and submitted to the Missouri Department of Natural Resources, Division of Environmental Quality, no discharges above the permitted standards were detected for any of the required constituent to be monitored. Thus based upon this monitoring data, no additional sampling associated with the wastewater treatment or the permitted outfalls, above that which is required under the permit, is included in this Field Sampling Plan.

3.6.3 Present Sampling Strategy

Presently under Doe Run's Missouri State Operating Permit, monthly grab samples are collected from outfalls #001, and #003. If an emergency discharge were to occur from outfall #002, then a grab sample would be collected at the time of the discharge. These grab samples are presently analyzed for, pH, total suspended solids, and total recoverable arsenic, cadmium, copper, lead, and zinc. Once a year a sample is also analyzed for silver and Whole Effluent Toxicity (WET).

4.0 SURFACE WATER SAMPLING

4.1 Rationale

Surface water sampling will be conducted to aid in evaluating the potential for contamination migration. Samples will be collected in areas of potential contamination based upon historical data and in areas that present data gaps as identified in the Administrative Order On Consent. Specific rationales is presented in Section 3.0 of this Field Sampling Plan.

4.1.1 Surface Water Sample Locations

Surface water sampling will be conducted from ponded water and surface drainage pathways that could potentially be contaminated due to drainage from an upgradient source or from direct contamination. Specific surface water sample locations will be determined based upon an evaluation of surface water drainage pathways following a significant rainfall event.

4.1.2 Sample Collection and Field and Laboratory Analysis

Samples collection and analytical parameters are based upon historical information available for the site. Specific rationale for sample collection, and field and laboratory analysis is presented in Section 3.0 of this Field Sampling Plan.

4.1.3 Upgradient, QC, and Blank Samples and Frequency

Samples will be collected from upgradient locations that are believed to be in an area that poses no potential for being impacted from a potential source. The upgradient samples will be used to compare what constituents are naturally occurring versus what has been introduced into the media. Specific numbers and locations of upgradient samples are outlined in Section 3.0 of this Field Sampling Plan.

QC samples will be collected during each sampling event at a frequency of 20%. QC samples are field replicates which are sent to the contracted laboratory to evaluate reproducibility.

Rinse blanks and trip blanks will also be sent to the contracted laboratory to fufill QC requirements. Rinse blanks will be collected at a frequency of 10% when non-dedicated sampling equipment is being used. Trip blanks will be included when samples are being shipped for VOC analyses. A minimum of one trip blank sample will be sent in each cooler that is shipped.

Specific numbers of primary samples, QC (including blanks), in addition to a list of anticipated analytical parameters and associated blanks (e.g., trip and rinsate/equipment) is presented in tabular form in Section 3.0 of this Field Sampling Plan.

4.2 Procedures

4.2.1 Sample Methods for Surface Water - General

When possible, samples will be collected by the direct immersion of the bottles to a depth approximately half the total depth. The bottles will be oriented so that water entering the bottle has not come in contact with the bottle exterior or with the sampling equipment. If there is insufficient water in which to immerse bottles, water will be collected with a polyethylene beaker or dipper with subsequent transfer into the sample bottles until all bottles are full. Caution will be exercised to reduce disturbance of the sediment. Downstream samples will be collected first to reduce the effects of sediment disturbance. Water samples will also be collected from drainage pathways. Sampling will be done after a significant rainfall event when the drainage pathways are flowing. Sample bottles for each class of analysis will be filled in the following order: volatiles,

semivolatiles, and total metals,. Details on sample containers and preservation are presented in Section 4.2.3 A sample will also be collected for the field measurement of pH, conductivity, and temperature. New, disposable gloves will be worn when collecting surface water samples at each location.

At a minimum, the following information will be recorded for each surface water sample collected:

- Date and time of collection.
- Sample location.
- Sample number.
- Weather conditions.
- Total depth of water (if feasible).
- Depth of sample collection.
- Approximate distance to point of sampling from bank or shore.
- Sample type (duplicate, split, field blank if applicable.
- Collection method (bailer, direct immersion, etc.).
- Temperature, conductivity, and pH of water.
- Sample preparation and preservation (HNO_3, etc.).
- Instrument calibration check.
- Sampler's name and personnel present.
- Presence of oil sheen or layers on water (if applicable).
- Remarks on any special problems or observations.

4.2.2 Field Measurement Procedures and Criteria

Instruments will be required in the field to measure index parameters of surface water. Field equipment to be used during water sampling will include instruments to measure pH, temperature, and conductivity of water samples. Reliable measurements are

dependent upon proper calibration and use of the instruments. All meters and monitoring equipment will be properly calibrated and used according to manufacturer's instructions and checked to ensure they are in operable condition. The types of equipment to be used and calibration and measurement procedures are described below.

The pH, temperature, and conductivity of water samples will be measured using field instruments, including a pH meter and electrical conductivity bridge. Fresh buffer and standard solutions will be used for calibration in the field. Monitors will be calibrated according to the manufacturers' instructions. The calibration will be checked frequently and adjusted if necessary. All calibrations and checks are recorded in the field logbook.

Field measurement of index parameters will be accomplished by immersing the probes in a clean polyethylene container containing at least 500 ml of the water sample. The probes will be moved slowly through the sample to minimize effects of the container wall on probe performance and to keep the sample from stagnating during measurement. Particular care will be exercised to maintain adequate submergence of the conductivity probe since it is sensitive to depth of submersion. Between readings, the probes will be rinsed with distilled water and the excess shaken off before immersion in the sample.

4.2.3 Sample Containers and Preservation Techniques

The appropriate type and size of sample containers and method of preservation will be used for each class of analysis. These requirements are summarized in Table 4-1. Sample packaging and shipping procedures are presented in Work Instruction WI-027, Project Administration, Packaging and Shipping Environmental Samples, of Appendix III, Part II Field Sampling Plan of the Groundwater Monitoring Plan.

4.2.4 Field Quality Control Sampling Procedures

In order to evaluate sampling equipment cleanliness, field sampling procedures, and contractor laboratory performance, several types of quality assurance samples will be collected and analyzed. QC samples are collected in the field and sent to the same laboratory as the rest of the field samples. QC samples include travel blanks, equipment blanks, and replicates.

TABLE 4-1

Test Methods, Containers, Preservatives, and Holding Times for Water Samples

Parameter	EPA Method[1]	Required Container	Required Preservative	Maximum Holding Times[2]
VOCs	8260A[2]	2x40 ml VOA Vial	Cooled to 4° HCL, pH<2	14 Days
SVOCs	8270B[5]	2x1L AG	Cooled to 4°	7 Days
TAL Metals[3,4]	6010A	1L P,G	Cooled to 4° HNO_3, pH<2	180 Days
Hg	7470A	In metals container	Cooled to 4° HNO_3, pH<2	28 Days

[1] Method referenced are from "Test Methods for Evaluating Solid Waste," SW-846,1989 or USEPA CLP SOW for Inorganics Analysis, Doc. No. ILMOL3/90
[2] Holding Times are from the sample collection date to preparation date, if applicable, then to analysis date.
[3] Determination of Hg will be by Method 7471A, all other metals will be by method 6010A. If detection Limits cannot be met for As or Se they shall be determined by methods 7060A and 7740, respectively.
[4] Note: the holding times for all metals parameters are equivalent with the exception of mercury
[5] Samples are prepared using method 3510B or 3520B. DRC=Diesel Range Organics

Equipment blanks (also referred to as rinsates) will be collected. They are produced by poring organic free water meeting the requirements of ASTM Type II reagent water, over the surfaces of decontaminated sampling equipment that come in contact with samples. The water is collected in a sample bottle and preserved appropriately. Equipment blanks will be collected at a frequency of 1 per 10 samples collected (minimum of 10%) and will be analyzed for the same parameters as the regular field samples.

Replicate samples are extra samples that have been divided into two or more portions at some step in the measurement process. A sample may be replicated in the field or at different points in the analytical process. Replicate samples will be collected for field QC purposes. Replicate samples will be collected in duplicate at a frequency of 1 per every 10 samples collected (a minimum of 20%). The two samples will be sent to the subcontracted laboratory as a primary field sample and as a blind duplicate. If insufficient sample volume exists to collect duplicates, QC samples will be collected at a greater frequency dependent upon sample volume.

4.2.5 Decontamination Procedures

In order to maintain sample integrity and reduce potential for cross contamination between samples, personnel, and within and off the sites, the decontamination of all equipment and management of investigation derived wastes will receive high priority. Equipment requiring decontamination will include a dipper, polyethylene beaker, and hand tools.

Prior to collection of each surface water sample, all sampling equipment that will come in physical contact with the matrix of interest will be decontaminated. Procedures for decontaminating the equipment are described in the following:

- Scrub in an Alconox detergent and potable water wash using a brush.
- Rinse thoroughly with potable water to remove detergent.
- Rinse thoroughly with ASTM Type II reagent-water.
- Rinse thoroughly with ASTM Type II reagent-water and air dry.
- Place item on plastic sheeting until dry then store in clean plastic bag until use.

5.0 REFERENCES

ELM, 2001. Sampling and Analysis Plan (SAP), Slag Investigation, The Doe Run Company Lead Smelter, Herculaneum, Missouri, Docket #VII-99-Date Pending, February, 2001.

Jacobs, 2001. Groundwater Monitoring Plan for the Doe Rum Resource Corporation, Herculaeum, Missouri, Revision 0, September 2001.

Maxium, 2000. Final Herculaneum Slag Storage Area, Ground Water Monitoring Program 1999, April 2000.

APPENDIX I

Department of Natural Resources
Missouri State Operating Permit
Doe Run Facility

Doe Run - Herculaneum Smelter
MO-0000281, Jefferson Co.

STATE OF MISSOURI
Mel Carnahan, Governor • David A. Shorr, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

November 9, 1995

The Doe Run Company
1801 Park 270 Drive, Suite 200
St. Louis, MO 63146

Dear Permittee:

Pursuant to the Federal Water Pollution Control act, under the authority granted to the state of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to Discharge from Doe Run - Herculaneum Smelter.

Please read your permit and attached Standard Conditions. They contain important information on monitoring requirements, effluent limitations, sampling frequencies and reporting requirements.

Monitoring reports required by the special conditions must be submitted on a periodic basis. Copies of the necessary report forms are enclosed and should be mailed to the regional office listed below. Please contact that office for additional forms.

This permit is both your Federal Discharge Permit and your new State Operating Permit and replaces all previous state operating permits for this facility. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.

If you have any questions concerning this permit, please do not hesitate to call this office or our Southeast Regional Office at 948 Lester St., P.O. Box 1420, Poplar Bluff, MO 63901, (314) 840-9750.

Sincerely,

WATER POLLUTION CONTROL PROGRAM

Daniel R. Schuette
Chief of Permit Section

DRS:rw

Enclosure

c: EPA - Billing Branch
Doe Run Co. Smelting Div., Herculaneum, MO

RECYCLED PAPER

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0000281

Owner: The Doe Run Company

Owner's Address: 1801 Park 270 Drive, Suite 200, St. Louis, Missouri 63146

Operating Authority: Doe Run Company Smelting Division

Operating Authority's Address: 881 Main St., Herculaneum, MO 63048

Facility Name: Doe Run - Herculaneum Smelter

Facility Address: 881 Main Street, Herculaneum, Missouri 63048

Legal Description: NE ¼, SE ¼, U.S. Survey 3028, T41N, R6E, Jefferson County

Receiving Stream & Basin: Mississippi River (Basin 48) (07140101-04-01) (P)

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

FACILITY DESCRIPTION

See Page Two

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.

November 9, 1995

Effective Date

John A. Young

John A. Young
Director, Division of Environmental Quality

March 22, 2000

Expiration Date

Director of Staff, Clean Water Commission

MO 780-0041 (10-93)

Recycled Paper

FACILITY DESCRIPTION - Industry - SIC #3332

Outfall #001 - Industrial process wastewater and process stormwater is treated in a wastewater plant with a design capacity of 1,152,000 gallons per day. The treatment consists of the following unit processes:

1. Flocculation
2. Neutralization
3. Sedimentation
4. Sand/Anthracite Filtration
5. Clarification
6. Sludge thickening/dewatering

Actual flow is 850 GPM.

Outfall #002 - Emergency stormwater overflow, no treatment. Design flow is 0.432 MGD. Actual flow is 300 GPM.

Outfall #003 - Acid plant non-contact cooling water, no treatment/Non-contact cooling water. Design flow is 2.33 MGD.

The sanitary waste from the toilets is treated in the Herculaneum POTW.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective 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
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. total
pH - Units	SU	**		**	once/month	grab
Total Suspended Solids	lbs/day	170.325		136.257	once/month	grab
Arsenic, Total Recoverable	lbs/day	12.861		5.216	once/month	grab
Cadmium, Total Recoverable	lbs/day	1.964		0.785	once/month	grab
Cadmium, Total Recoverable	mg/L	0.720			once/month	grab
Copper, Total Recoverable	lbs/day	11.839		4.750	once/month	grab
Copper, Total Recoverable	mg/L	0.580			once/month	grab
Lead, Total Recoverable	lbs/day	2.749		1.127	once/month	grab
Lead, Total Recoverable	mg/L	1.900			once/month	grab
Zinc, Total Recoverable	lbs/day	10.016		3.307	once/month	grab
Zinc, Total	mg/L	4.900			once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY, THE FIRST REPORT IS DUE December 28, 1995						
Silver	mg/L	0.130			once/year in September	grab
Whole Effluent Toxicity (WET) Test	% Survival	(See Special Conditions)			once/year	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY, THE FIRST REPORT IS DUE October 28, 1996						

MONITORING REPORTS SHALL BE SUBMITTED as outlined above ; THE FIRST REPORT IS DUE as outlined above
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 19 80 , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002						
Flow	MGD	*		*	once/weekday***	24 hr. total
pH - Units	SU	**		**	(Note 1)	grab
Total Suspended Solids	lbs/day	(Note 1)			(Note 1)	grab
Arsenic, Total Recoverable	lbs/day	(Note 1)			(Note 1)	grab
Cadmium, Total Recoverable	lbs/day	(Note 1)			(Note 1)	grab
Copper, Total Recoverable	lbs/day	(Note 1)			(Note 1)	grab
Lead, Total Recoverable	lbs/day	(Note 1)			(Note 1)	grab
Zinc, Total Recoverable	lbs/day	(Note 1)			(Note 1)	grab
Whole Effluent Toxicity (WET) Test	% Survival	(See Note 2)			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY, THE FIRST REPORT IS DUE October 28, 1996						
Outfall #003						
Flow	MGD	*			once/weekday***	24 hr. total
Temperature	°F	*			once/weekday***	grab
pH	SU	****			once/week	grab
Arsenic, Total Recoverable	mg/L	*			once/month	grab
Cadmium, Total Recoverable	mg/L	*			once/month	grab
Copper, Total Recoverable	mg/L	*			once/month	grab
Lead, Total Recoverable	mg/L	*			once/month	grab
Zinc, Total Recoverable	mg/L	*			once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY, THE FIRST REPORT IS DUE December 28, 1995						

D. SPECIAL CONDITIONS (continued)

7. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
Outfalls 001-002	10%	Annually	24 hr. comp.	December

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(2) The permittee shall submit a summary of all test results for the test series to the Planning Section of the WPCP, DNR, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) 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.

(4) 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 part b.(1) will be required during this period.

(5) In addition to the WET test summary report required in part (5), all failing test results shall be reported to DNR within 14 days of the availability of results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(continued)

). SPECIAL CONDITIONS (continued)

Whole Effluent Toxicity (WET) Test (continued)

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,

(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC.
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

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

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 pollutants shall be in accordance with the Missouri Clean Water Commission Effluent Regulation 10 CSR 20-7.015.

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 6 months per violation, or by 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 recordings 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 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 of 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 such changes, or, if they will not violate the effluent limitations specified in this 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 permitee shall provide the Department with the following information, in writing within five (5) days of becoming aware of such condition:
      (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 within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 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 20-9.020(2) and any other applicable state 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.

water sampling event will encompass the collection of samples at an estimated four sampling locations which is dependent upon identified drainage pathways.

3.2.4 Surface Water Sampling Requirements

A total of four surface water samples are estimated to be collected as part of this evaluation of the old slag pile to assess whether the old slag pile is impacting the surrounding environment. This is to be a one time sampling event to be conducted immediately following a significant rainfall event.

Surface water samples collected during this evaluation will be submitted to a contracted laboratory for SVOCs and TAL metals. Quality Control (QC) samples are to be collected at a frequency of 20%, field blanks, and equipment rinseate blanks are to be collected at a frequency of 10%. A summary of the quantity of primary and duplicate samples is presented in Table 3-2.

TABLE 3-2
SURFACE WATER SAMPLING REQUIRMENTS

PARAMETER	PRIMARY SAMPLES	QC SAMPLES	FIELD BLANKS	EQUIP. BLANKS	TRIP BLANKS
SVOCs	4	1	1	1	0
TAL Metals	4	1	1	1	0

3.2.5 Sampling Procedures

Details on the collection of surface water samples at the old slag pile is presented in the next section of this Field Sampling Plan (Section 4.0). In addition to the collection of surface water samples at each of the sampling locations identified in the drainage pathway evaluation, field measured parameters including, temperature, pH and specific conductivity will be recorded, along with the date, time and amount of rainfall which proceeded this sampling event. Additional sampling procedures are presented in the previously prepared Groundwater Monitoring Plan (Jacobs, 2001) and the Sampling and Analysis Plan for the Slag Investigation

(ELM Consultants, 2001). Other Applicable specific Work Instruction (SOPs) included in Appendix III, Part II "Field Sampling Plan" of the Groundwater Monitoring Plan include:

- WI-025 Environmental Sample Management
- WI-026 Chain-of-Custody Forms
- WI-027 Project Administration, Packaging. And Shipping Environmental Samples
- WI-035 Field Logbooks
- WI-036 Equipment Decontamination Procedures

3.3 INTERIM SLAG STORAGE

3.3.1 Description

The primary interim Slag storage area is located in the central portion of the facility adjacent to the smelter, see Figure 2-2. This slag material is staged in this location awaiting either re-incorporation into the smeltering operation or placement in the slag storage pile located to the south of the Doe Run facility. Slag production with only one furnace in operation is on the order of approximately 150 tons per day. At any one time it is estimated that approximately 1,800 tons of slag are temporary stored in the interim slag storage area. A secondary interim storage area is located on the western side of the facility just west of the railroad switch yard. This interim storage area is used for the temporary storage of copper dross until enough can be accumulated (approximately 1500 tons) for sale and subsequent to shipment to an outside vender. When no copper dross is being accumulated, this area is empty.

3.3.2 Sampling Rational

To evaluate whether the interim slag storage area is potentially impacting the surrounding environment, a serious of surface water samples will be collected from drainage pathways following a significant rainfall event. Based upon the nature of the slag material, surface water runoff is thought to be the predominant transport mechanism for the conveyance of any potential contaminants that may stem form the interim slag storage area.

THE DOE RUN COMPANY

SMELTING DIVISION

James M. Lanzafame
Environmental Manager

November 21, 2001

Mr. Dave Mosby
MDNR, Superfund Section
P. O. Box 176
Jefferson City, Missouri 65102

Mr. Tony Petruska
USEPA, Region VII
901 N 5th Street
Kansas City, KS 66101

Re: AOC Scope of Work Item V. Other Issues 1. and 2.

Dear Sirs,

Enclosed you will find the copies of the data available for those areas identified in V.1. of the AOC.

In addition, in support of the request for information in the AOC "Part V. Other Issues", item 2, our contractor (ELM) has prepared the enclosed set of Preliminary Conceptual Exposure Models (PCEMs), which identify potential human and ecological receptors relative to the following potential sources at the Doe Run facility:

1. Older Slag Pile (near the acid storage tanks on the north end of the property)
2. Interim Slag Storage Areas
3. Stack Emissions
4. Facility-Wide Stormwater Runoff
5. Wastewater Treatment Facility Discharges (Outfall #001)
6. Staging Areas for Shipping (Kettle Dross)

A PCEM for the primary slag storage area at the southern portion of the site was previously prepared and submitted as Figure 3 in ELM's Sampling and Analysis Plan (SAP) in September 2001. In addition to the above six potential source areas, Doe Run was asked to identify potential receptors for "other groundwater contamination sources such as areas where solvents or fuels may have been used", and "other processing areas such as solvent use areas, and acid production facilities". However, specific sources of "groundwater contamination" were not identified at the facility, except as a secondary source associated with potential contaminant migration from the six potential sources identified above. Similarly, the potential receptors for contamination from "other processing areas" are addressed jointly through the PCEMs for facility-wide stormwater runoff and the wastewater treatment outfall.

Please don't hesitate to contact me at 636-933-3143, if you have any questions regarding this submittal.

Sincerely,

James M. Lanzafame

James M. Lanzafame
Environmental Manager

881 MAIN ST., HERCULANEUM, MO 63048
TELEPHONE: 636-479-5311

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St. Louis, Missouri Permit No: MO-0000281
FILE NUMBER: 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 09/01/01 To 09/30/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	09/01/01		0.289														
001	09/02/01		0.216														
001	09/03/01		0.174														
001	09/04/01		0.320														
001	09/05/01		0.339														
001	09/06/01	**12 30	0.356	CA	9.2	Grab	09/06/01	(0.030)	0.005	(0.015)	0.005	(0.015)	0.040	(0.119)	0.027	(0.080)	3.0
001	09/07/01		0.305														
001	09/08/01		0.214														
001	09/09/01		0.200														
001	09/10/01		0.379														
001	09/11/01		0.354														
001	09/12/01		0.120														
001	09/13/01		0.087														
001	09/14/01		0.082														
001	09/15/01		0.375														
001	09/16/01		0.316														
001	09/17/01		0.349														
001	09/18/01		0.389														
001	09/19/01		0.262														
001	09/20/01		0.238														
001	09/21/01		0.321														
001	09/22/01		0.287														
001	09/23/01		0.372														
001	09/24/01		0.224														
001	09/25/01		0.166														
001	09/26/01		0.183														
001	09/27/01		0.286														
001	09/28/01		0.185														
001	09/29/01		0.228														
001	09/30/01		0.160														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	09/01/01		No Discharge											
002	09/02/01		No Discharge											
002	09/03/01		No Discharge											
002	09/04/01		No Discharge											
002	09/05/01		No Discharge											
002	09/06/01		No Discharge											
002	09/07/01		No Discharge											
002	09/08/01		No Discharge											
002	09/09/01		No Discharge											
002	09/10/01		No Discharge											
002	09/11/01		No Discharge											
002	09/12/01		No Discharge											
002	09/13/01		No Discharge											
002	09/14/01		No Discharge											
002	09/15/01		No Discharge											
002	09/16/01		No Discharge											
002	09/17/01		No Discharge											
002	09/18/01		No Discharge											
002	09/19/01		No Discharge											
002	09/20/01		No Discharge											
002	09/21/01		No Discharge											
002	09/22/01		No Discharge											
002	09/23/01		No Discharge											
002	09/24/01		No Discharge											
002	09/25/01		No Discharge											
002	09/26/01		No Discharge											
002	09/27/01		No Discharge											
002	09/28/01		No Discharge											
002	09/29/01		No Discharge											
002	09/30/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	09/01/01		1.419										
003	09/02/01		1.484										
003	09/03/01		1.635			75							
003	09/04/01		1.357			79							
003	09/05/01		1.440			78							
003	09/06/01	**12 40	1.376	CA	7.3	78	Grab	09/06/01	< 01	<0.005	< 005	0.060	0.013
003	09/07/01		1.368			81							
003	09/08/01		1.520										
003	09/09/01		1.350										
003	09/10/01		1.350										
003	09/11/01		1.350										
003	09/12/01		1.350										
003	09/13/01	[illegible]	1.350	CA	7.4	76	Grab	09/13/01					
003	09/14/01		1.405			73							
003	09/15/01		1.293										
003	09/16/01		1.245										
003	09/17/01		1.222			75							
003	09/18/01		1.395			77							
003	09/19/01		1.422			77							
003	09/20/01	[illegible]	1.346	CA	7.3	73	Grab	09/20/01					
003	09/21/01		1.243			72							
003	09/22/01		1.273										
003	09/23/01		1.282										
003	09/24/01		1.361			70							
003	09/25/01		1.259			71							
003	09/26/01		1.348			70							
003	09/27/01	[illegible]	1.394	CA	7.1	70	Grab	09/27/01					
003	09/28/01		1.380			71							
003	09/29/01		1.292										
003	09/30/01		1.179										

**001 pH analyzed 9/06/01 **13 00 *EPA Method 150.1*.
TSS analyzed 9/06/01 *EPA Method 160.2*,
Metals analyzed 9/19/01 *EPA Method 200.7*
[illegible] *EPA Method 150.1*, metals analyzed 9/19/01 *EPA Method 200.7*

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St. Louis, Missouri Permit No: MO-0000281
FILE NUMBER: 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 08/01/01 To 08/31/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	08/01/01	*10 30	0 325	CA	9 2	Grab	08/01/01	(0 027)	0 006	(0 016)	0 005	(0 014)	0.030	(0 081)	0 039	(0 106)	2 7
001	08/02/01		0.290														
001	08/03/01		0 315														
001	08/04/01		0.308														
001	08/05/01		0 416														
001	08/06/01		0.317														
001	08/07/01		0.162														
001	08/08/01		0.123														
001	08/09/01	10:50	0.520	CA	8.9												
001	08/10/01		0.479														
001	08/11/01		0 072														
001	08/12/01		0.238														
001	08/13/01		0.378														
001	08/14/01		0.166														
001	08/15/01		0.188														
001	08/16/01		0.164														
001	08/17/01		0.232														
001	08/18/01		0.233														
001	08/19/01		0 249														
001	08/20/01		0.064														
001	08/21/01		0.110														
001	08/22/01		0.080														
001	08/23/01		0.271														
001	08/24/01		0.135														
001	08/25/01		0.298														
001	08/26/01		0.302														
001	08/27/01		0.333														
001	08/28/01		0.334														
001	08/29/01		0.277														
001	08/30/01		0.226														
001	08/31/01		0.236														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	08/01/01		No Discharge											
002	08/02/01		No Discharge											
002	08/03/01		No Discharge											
002	08/04/01		No Discharge											
002	08/05/01		No Discharge											
002	08/06/01		No Discharge											
002	08/07/01		No Discharge											
002	08/08/01		No Discharge											
002	08/09/01		No Discharge											
002	08/10/01		No Discharge											
002	08/11/01		No Discharge											
002	08/12/01		No Discharge											
002	08/13/01		No Discharge											
002	08/14/01		No Discharge											
002	08/15/01		No Discharge											
002	08/16/01		No Discharge											
002	08/17/01		No Discharge											
002	08/18/01		No Discharge											
002	08/19/01		No Discharge											
002	08/20/01		No Discharge											
002	08/21/01		No Discharge											
002	08/22/01		No Discharge											
002	08/23/01		No Discharge											
002	08/24/01		No Discharge											
002	08/25/01		No Discharge											
002	08/26/01		No Discharge											
002	08/27/01		No Discharge											
002	08/28/01		No Discharge											
002	08/29/01		No Discharge											
002	08/30/01		No Discharge											
002	08/31/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	08/01/01	**10 40	1.239	CA	7.5	91	Grab	08/01/01	<.01	<0 005	<.005	<.01	0 009
003	08/02/01		0.855			96							
003	08/03/01		1 151			99							
003	08/04/01		1 441										
003	08/05/01		1.448										
003	08/06/01		1.394			96							
003	08/07/01		1 580			93							
003	08/08/01		1.605			83							
003	08/09/01	13 55	1.510	CA	7 4	83	Grab	08/09/01					
003	08/10/01		1.698			84							
003	08/11/01		1 443										
003	08/12/01		1 625										
003	08/13/01		1 569			82							
003	08/14/01		1 510			80							
003	08/15/01		1 548			80							
003	08/16/01		2 059			81							
003	08/17/01	[illegible]	0 996	CA	7 3	83	Grab	08/17/01					
003	08/18/01		1 677										
003	08/19/01		1 008										
003	08/20/01		1.626			77							
003	08/21/01		No Discharge										
003	08/22/01		1 749			83							
003	08/23/01	[illegible]	1 839	CA	7 2	87	Grab	08/23/01					
003	08/24/01		1 346			81							
003	08/25/01		1.630										
003	08/26/01		1 500										
003	08/27/01		1 420			78							
003	08/28/01		1 386			79							
003	08/29/01		1 372			81							
003	08/30/01	[illegible]	1.509	CA	7 2	80	Grab	08/30/01					
003	08/31/01		1 516			79							

*001 pH analyzed 8.01 [illegible] 13 55) 8/09/01 ('14 10) *EPA Method 150.1*.
**TSS analyzed 8/01/01 EPA Method 160.2.
Metals analyzed 8/14 [illegible] *EPA Method 200.7*
[illegible] *EPA Method 150 1*, metals analyzed 8/14/01 *EPA Method 200 7*

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER. The Doe Run Company
St. Louis, Missouri Permit No: MO-0000281
FILE NUMBER: 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 07/01/01 To 07/31/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	07/01/01		0.231														
001	07/02/01		0.165														
001	07/03/01	**10 30	0.243	CA	9.0	Grab	07/03/01	(<0 061)	0.056	(0 113)	<0 005	(<0 010)	0 020	(0 040)	0 029	(0.059)	4 0
001	07/04/01		0.169														
001	07/05/01		0 266														
001	07/06/01		0.172														
001	07/07/01		0.277														
001	07/08/01		0 246														
001	07/09/01		0.319														
001	07/10/01		0.199														
001	07/11/01		0 248														
001	07/12/01		0.229														
001	07/13/01		0 130														
001	07/14/01		0.209														
001	07/15/01		0 163														
001	07/16/01		0 083														
001	07/17/01		0.186														
001	07/18/01		0.320														
001	07/19/01		0.325														
001	07/20/01		0 026														
001	07/21/01		0.198														
001	07/22/01		0.238														
001	07/23/01		0.084														
001	07/24/01		0.590														
001	07/25/01		0.317														
001	07/26/01		0.358														
001	07/27/01		0 379														
001	07/28/01		0 343														
001	07/29/01		0.297														
001	07/30/01		0.199														
001	07/31/01		0.259														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	07/01/01		No Discharge											
002	07/02/01		No Discharge											
002	07/03/01		No Discharge											
002	07/04/01		No Discharge											
002	07/05/01		No Discharge											
002	07/06/01		No Discharge											
002	07/07/01		No Discharge											
002	07/08/01		No Discharge											
002	07/09/01		No Discharge											
002	07/10/01		No Discharge											
002	07/11/01		No Discharge											
002	07/12/01		No Discharge											
002	07/13/01		No Discharge											
002	07/14/01		No Discharge											
002	07/15/01		No Discharge											
002	07/16/01		No Discharge											
002	07/17/01		No Discharge											
002	07/18/01		No Discharge											
002	07/19/01		No Discharge											
002	07/20/01		No Discharge											
002	07/21/01		No Discharge											
002	07/22/01		No Discharge											
002	07/23/01		No Discharge											
002	07/24/01		No Discharge											
002	07/25/01		No Discharge											
002	07/26/01		No Discharge											
002	07/27/01		No Discharge											
002	07/28/01		No Discharge											
002	07/29/01		No Discharge											
002	07/30/01		No Discharge											
002	07/31/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	07/01/01		1.523										
003	07/02/01		1.457			85							
003	07/03/01	**10 20	1.331	CA	7 4	85	Grab	07/03/01	0 020	<0 005	0 005	0 030	0.033
003	07/04/01		1.328			85							
003	07/05/01		1.241			87							
003	07/06/01		1.258			82							
003	07/07/01		1.303										
003	07/08/01		1.264										
003	07/09/01		1.230			90							
003	07/10/01		1 401			88							
003	07/11/01		1 435			80							
003	07/12/01	12 15	1 524	CA	7 2	76	Grab	07/12/01					
003	07/13/01		1 406			80							
003	07/14/01		1 540										
003	07/15/01		1 557										
003	07/16/01	14 00	1 454	CA	7 6	83	Grab	07/16/01					
003	07/17/01		1 121			83							
003	07/18/01		1 341			88							
003	07/19/01		1 488			92							
003	07/20/01		1 025			88							
003	07/21/01		1 755										
003	07/22/01		1 699										
003	07/23/01		1 190			98							
003	07/24/01	10 00	1 370	CA	7 3	84	Grab	07/24/01					
003	07/25/01		1 782			90							
003	07/26/01		0 872			97							
003	07/27/01		1.248			96							
003	07/28/01		1.237										
003	07/29/01		1 196										
003	07/30/01		1 157			97							
003	07/31/01		1 298			95							

*001 pH analyzed 7 03.01 10 55: *EPA Method 150.1*.
TSS analyzed 7.03.01 EPA Method 160.2.
Metals analyzed 7/12 01 *EPA Method 200.7*
**003 pH analyzed 7 03.01 10 55: *EPA Method 150.1*, metals analyzed 7/12/01 *EPA Method 200 7*

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St. Louis, Missouri Permit No: MO-0000281
FILE NUMBER: 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 06/01/01 To

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	06/01/01		0.411														
001	06/02/01		0.248														
001	06/03/01		0.265														
001	06/04/01		0.081														
001	06/05/01	**12 30	0.256	CA	9.0	Grab	06/05/01	(0.021)	0.007	(0.015)	0.005	(0.011)	0.140	(0.299)	0.033	(0.071)	2.1
001	06/06/01		0.360														
001	06/07/01		0.294														
001	06/08/01		0.167														
001	06/09/01		0.217														
001	06/10/01		0.261														
001	06/11/01		0.245														
001	06/12/01		0.308														
001	06/13/01		0.262														
001	06/14/01		0.263														
001	06/15/01		0.274														
001	06/16/01		0.198														
001	06/17/01		0.141														
001	06/18/01		0.263														
001	06/19/01		0.294														
001	06/20/01		0.336														
001	06/21/01		0.366														
001	06/22/01		0.044														
001	06/23/01		0.367														
001	06/24/01		0.300														
001	06/25/01		0.209														
001	06/26/01		0.164														
001	06/27/01		0.152														
001	06/28/01		0.239														
001	06/29/01		0.319														
001	06/30/01		0.305														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	06/01/01		No Discharge											
002	06/02/01		No Discharge											
002	06/03/01		No Discharge											
002	06/04/01		No Discharge											
002	06/05/01		No Discharge											
002	06/06/01		No Discharge											
002	06/07/01		No Discharge											
002	06/08/01		No Discharge											
002	06/09/01		No Discharge											
002	06/10/01		No Discharge											
002	06/11/01		No Discharge											
002	06/12/01		No Discharge											
002	06/13/01		No Discharge											
002	06/14/01		No Discharge											
002	06/15/01		No Discharge											
002	06/16/01		No Discharge											
002	06/17/01		No Discharge											
002	06/18/01		No Discharge											
002	06/19/01		No Discharge											
002	06/20/01		No Discharge											
002	06/21/01		No Discharge											
002	06/22/01		No Discharge											
002	06/23/01		No Discharge											
002	06/24/01		No Discharge											
002	06/25/01		No Discharge											
002	06/26/01		No Discharge											
002	06/27/01		No Discharge											
002	06/28/01		No Discharge											
002	06/29/01		No Discharge											
002	06/30/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	06/01/01		0.665			82							
003	06/02/01		1.300										
003	06/03/01		1.300										
003	06/04/01		1.300										
003	06/05/01		1.300										
003	06/06/01		0.908			76							
003	06/07/01	***15 04	0.834	JML	7.3	79	Grab	06/07/01					
003	06/08/01		1.314			89							
003	06/09/01		1.349										
003	06/10/01		1.450										
003	06/11/01		1.413			88							
003	06/12/01		1.409			90							
003	06/13/01	13 00	1.406	CA	7.2	89	Grab	06/13/01	<0.01	<0.005	0.008	0.010	0.006
003	06/14/01		1.389			90							
003	06/15/01		1.385			89							
003	06/16/01		1.368										
003	06/17/01		1.446										
003	06/18/01	10 55	1.451	JML	7.3	90	Grab	06/18/01					
003	06/19/01		1.323			85							
003	06/20/01		1.558			75							
003	06/21/01		1.502			83							
003	06/22/01		1.591			84							
003	06/23/01		1.633										
003	06/24/01		1.620										
003	06/25/01	** 40	1.473	CA	7.2	83	Grab	06/25/01					
003	06/26/01		1.540			79							
003	06/27/01		1.495			84							
003	06/28/01		1.517			82							
003	06/29/01		1.394			85							
003	06/30/01		1.501										

*001 pH analyzed 6/05/01 (13 00) *EPA Method 150.1*.
TSS analyzed 6/05/01 EPA Method 160.2,
Metals analyzed 6/13/01 *EPA Method 200.7*
[illegible] *EPA Method 150.1* metals analyzed 6/18/01 *EPA Method 200.7*

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St. Louis, Missouri Permit No: MO-0000281
FILE NUMBER: 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 05/01/01 To 05/31/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	05/01/01		0.441														
001	05/02/01	**9 00	0.485	CA	9.4	Grab	05/02/01	(0 081)	0.005	(0.020)	0.005	(0 020)	0 030	(0 122)	0.039	(0.158)	4 1
001	05/03/01		0.334														
001	05/04/01		0.291														
001	05/05/01		0.196														
001	05/06/01		0 261														
001	05/07/01		0 499														
001	05/08/01		0 356														
001	05/09/01		0.277														
001	05/10/01		0 219														
001	05/11/01		0 200														
001	05/12/01		0.208														
001	05/13/01		0.253														
001	05/14/01		0 258														
001	05/15/01		0.216														
001	05/16/01		0 287														
001	05/17/01		0.306														
001	05/18/01		0.184														
001	05/19/01		0.346														
001	05/20/01		0.417														
001	05/21/01		0.631														
001	05/22/01		0 247														
001	05/23/01		0.303														
001	05/24/01		0.342														
001	05/25/01		0 300														
001	05/26/01		0.192														
001	05/27/01		0.453														
001	05/28/01		0.364														
001	05/29/01		0.254														
001	05/30/01		0.498														
001	05/31/01		0.483														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	05/01/01		No Discharge											
002	05/02/01		No Discharge											
002	05/03/01		No Discharge											
002	05/04/01		No Discharge											
002	05/05/01		No Discharge											
002	05/06/01		No Discharge											
002	05/07/01		No Discharge											
002	05/08/01		No Discharge											
002	05/09/01		No Discharge											
002	05/10/01		No Discharge											
002	05/11/01		No Discharge											
002	05/12/01		No Discharge											
002	05/13/01		No Discharge											
002	05/14/01		No Discharge											
002	05/15/01		No Discharge											
002	05/16/01		No Discharge											
002	05/17/01		No Discharge											
002	05/18/01		No Discharge											
002	05/19/01		No Discharge											
002	05/20/01		No Discharge											
002	05/21/01		No Discharge											
002	05/22/01		No Discharge											
002	05/23/01		No Discharge											
002	05/24/01		No Discharge											
002	05/25/01		No Discharge											
002	05/26/01		No Discharge											
002	05/27/01		No Discharge											
002	05/28/01		No Discharge											
002	05/29/01		No Discharge											
002	05/30/01		No Discharge											
23802	05/31/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	05/01/01		1.586			80							
003	05/02/01	***9 20	1.005	CA	7 4	80	Grab	05/02/01	0 020	<0 005	<0 005	<0 01	0.005
003	05/03/01		1 043			78							
003	05/04/01		1.133			79							
003	05/05/01		1.060										
003	05/06/01		1.339										
003	05/07/01		1.205			80							
003	05/08/01		1 092			79							
003	05/09/01		0.936			72							
003	05/10/01	8 45	1.365	CA	7 3	83	Grab	05/10/01					
003	05/11/01		1 370			87							
003	05/12/01		1 320										
003	05/13/01		1 347										
003	05/14/01	[illegible]	1 378	CA	7 2	84	Grab	05/14/01					
003	05/15/01		1 460			81							
003	05/16/01		1 470			86							
003	05/17/01		1.302			80							
003	05/18/01		1 479			88							
003	05/19/01		1 519										
003	05/20/01		1.335										
003	05/21/01		1 460			75							
003	05/22/01	8 09	1 319	JML	7 3	81	Grab	05/22/01					
003	05/23/01		1.329			81							
003	05/24/01		1 335			81							
003	05/25/01		1 089			80							
003	05/26/01		1 663										
003	05/27/01		1 767										
003	05/28/01		0 875			80							
003	05/29/01		1.385			79							
003	05/30/01	[illegible]	1.296	JML	7 0	86	Grab	05/30/01					
003	05/31/01		1 331			82							

*pH analyzed 5/02/01 9 45 EPA Method 150.1
TSS analyzed 5/02/01 EPA Method 160.2,
Metals analyzed 5/15/01 EPA Method 200 7
EPA Method 150.1 metals analyzed 5/15/01 EPA Method 200 7

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St. Louis, Missouri Permit No: MO-0000281
FILE NUMBER: 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 04/01/01 To

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	04/01/01		0.528														
001	04/02/01		0.348														
001	04/03/01		0.618														
001	04/04/01		0.333														
001	04/05/01	**8:00	0.209	CA	9.5	Grab	04/05/01	(0.052)	0.005	(0.009)	0.005	(0.009)	0.140	(0.245)	0.05	(0.087)	1.7
001	04/06/01		0.229														
001	04/07/01		0.138														
001	04/08/01		0.301														
001	04/09/01		0.219														
001	04/10/01		0.337														
001	04/11/01		0.169														
001	04/12/01		0.125														
001	04/13/01		0.156														
001	04/14/01		0.223														
001	04/15/01		0.397														
001	04/16/01		0.427														
001	04/17/01		0.481														
001	04/18/01		0.327														
001	04/19/01		0.223														
001	04/20/01		0.225														
001	04/21/01		0.378														
001	04/22/01		0.291														
001	04/23/01		0.271														
001	04/24/01		0.363														
001	04/25/01		0.246														
001	04/26/01		0.312														
001	04/27/01		0.109														
001	04/28/01		0.118														
001	04/29/01		0.189														
001	04/30/01		0.338														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	04/01/01		No Discharge											
002	04/02/01		No Discharge											
002	04/03/01		No Discharge											
002	04/04/01		No Discharge											
002	04/05/01		No Discharge											
002	04/06/01		No Discharge											
002	04/07/01		No Discharge											
002	04/08/01		No Discharge											
002	04/09/01		No Discharge											
002	04/10/01		No Discharge											
002	04/11/01		No Discharge											
002	04/12/01		No Discharge											
002	04/13/01		No Discharge											
002	04/14/01		No Discharge											
002	04/15/01		No Discharge											
002	04/16/01		No Discharge											
002	04/17/01		No Discharge											
002	04/18/01		No Discharge											
002	04/19/01		No Discharge											
002	04/20/01		No Discharge											
002	04/21/01		No Discharge											
002	04/22/01		No Discharge											
002	04/23/01		No Discharge											
002	04/24/01		No Discharge											
002	04/25/01		No Discharge											
002	04/26/01		No Discharge											
002	04/27/01		No Discharge											
002	04/28/01		No Discharge											
002	04/29/01		No Discharge											
002	04/30/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	04/01/01		0.966										
003	04/02/01		1.139			0							
003	04/03/01		1.267			0							
003	04/04/01		1.243			0							
003	04/05/01	**8:10	1.111	CA	7.6	76	Grab	04/05/01	<0.01	<0.005	<0.005	<0.01	<0.005
003	04/06/01		1.108			79							
003	04/07/01		1.085										
003	04/08/01		1.142										
003	04/09/01		1.097			86							
003	04/10/01		1.212			80							
003	04/11/01	9:30	1.117	CA	7.4	78	Grab	04/11/01					
003	04/12/01		1.203			78							
003	04/13/01		1.125			76							
003	04/14/01		1.247										
003	04/15/01		1.032										
003	04/16/01		1.137			71							
003	04/17/01		1.221			71							
003	04/18/01		[illegible]			73							
003	04/19/01	[illegible]	1.250	CA	7.5	[illegible]	Grab	04/19/01					
003	04/20/01		0.715			77							
003	04/21/01		1.341										
003	04/22/01		1.728										
003	04/23/01		1.372			70							
003	04/24/01		1.181			79							
003	04/25/01	**:25	1.174	CA	7.4	73	Grab	04/25/01					
003	04/26/01		0.634			74							
003	04/27/01		0.515			74							
003	04/28/01		0.592										
003	04/29/01		0.590										
003	04/30/01		1.306			70							

*001 pH analyzed 4/05/01 9:20 EPA Method 150.1.
TSS analyzed 4/06/01 EPA Method 160.2.
Metals analyzed 4/09/01 EPA Method 200.7
**003 pH analyzed 4/05/01 9:20 EPA Method 150.1 metals analyzed 4/09/01 EPA Method 200.7

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 03/01/01 To 03/31/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	03/01/01		0 545														
001	03/02/01		0 525														
001	03/03/01		0.643														
001	03/04/01		0 495														
001	03/05/01		0.350														
001	03/06/01		0 183														
001	03/07/01		0.328														
001	03/08/01		0.484														
001	03/09/01		0.436														
001	03/10/01		0 482														
001	03/11/01		0 509														
001	03/12/01		0.439														
001	03/13/01	*13 40	0 284	CA	9 1	Grab	03/13/01	(0 024)	0 005	(0.012)	0.005	(0.012)	0.100	(0 237)	0 017	(0 040)	2 4
001	03/14/01		0 354														
001	03/15/01		0.351														
001	03/16/01		0.441														
001	03/17/01		0.518														
001	03/18/01		0.545														
001	03/19/01		0.396														
001	03/20/01		0.308														
001	03/21/01		0.171														
001	03/22/01		0.254														
001	03/23/01		0.425														
001	03/24/01		0.227														
001	03/25/01		0.495														
001	03/26/01		0 441														
001	03/27/01		0.432														
001	03/28/01		0.333														
001	03/29/01		0.263														
001	03/30/01		0.390														
001	03/31/01		0.576														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	03/01/01		No Discharge											
002	03/02/01		No Discharge											
002	03/03/01		No Discharge											
002	03/04/01		No Discharge											
002	03/05/01		No Discharge											
002	03/06/01		No Discharge											
002	03/07/01		No Discharge											
002	03/08/01		No Discharge											
002	03/09/01		No Discharge											
002	03/10/01		No Discharge											
002	03/11/01		No Discharge											
002	03/12/01		No Discharge											
002	03/13/01		No Discharge											
002	03/14/01		No Discharge											
002	03/15/01		No Discharge											
002	03/16/01		No Discharge											
002	03/17/01		No Discharge											
002	03/18/01		No Discharge											
002	03/19/01		No Discharge											
002	03/20/01		No Discharge											
002	03/21/01		No Discharge											
002	03/22/01		No Discharge											
002	03/23/01		No Discharge											
002	03/24/01		No Discharge											
002	03/25/01		No Discharge											
002	03/26/01		No Discharge											
002	03/27/01		No Discharge											
002	03/28/01		No Discharge											
002	03/29/01		No Discharge											
002	03/30/01		No Discharge											
002	03/31/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	03/01/01		0.955			62							
003	03/02/01		0 978			64							
003	03/03/01		0 911										
003	03/04/01		1 073										
003	03/05/01		1 070			68							
003	03/06/01		1.452			68							
003	03/07/01		0 446			67							
003	03/08/01		1 131			65							
003	03/09/01	11 55	1.252	CA	7 4	71	Grab	03/09/01					
003	03/10/01		1 325										
003	03/11/01		1 279										
003	03/12/01		1 301			73							
003	03/13/01	**13 50	1.336	CA	7.3	75	Grab	03/13/01	<0 01	<0.005	<0 005	<0 01	0 006
003	03/14/01		1.163			74							
003	03/15/01		1.709			77							
003	03/16/01		1 125			67							
003	03/17/01		1 112										
003	03/18/01		1.233										
003	03/19/01		0 698			74							
003	03/20/01		1.245			75							
003	03/21/01		1 218			69							
003	03/22/01	[illegible]	1 145	CA	7 3	75	Grab	03/22/01					
003	03/23/01		0 913			78							
003	03/24/01		1 175										
003	03/25/01		0 943										
003	03/26/01	[illegible]	0 883	CA	7 4	75	Grab	03/26/01					
003	03/27/01		1 103			72							
003	03/28/01		1 003			65							
003	03/29/01		1 187			72							
003	03/30/01		1 124			78							
003	03/31/01		1 112										

*001 pH analyzed 3/13/01 (4 10) EPA Method 150.1
TSS analyzed 3/13/01 EPA Method 160.2.
Metals analyzed 3/19/01 EPA Method 200.7
**003 pH analyzed 3/13/01 (4 10) EPA Method 150.1, metals analyzed 3/19/01 EPA Method 200.7
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St. Louis, Missouri Permit No. MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 02/01/01 To 02/28/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	02/01/01		0 363														
001	02/02/01		0 442														
001	02/03/01		0 378														
001	02/04/01		0 324														
001	02/05/01		0 392														
001	02/06/01		0 573														
001	02/07/01		0.610														
001	02/08/01		0 575														
001	02/09/01		0 504														
001	02/10/01		0.396														
001	02/11/01		0 366														
001	02/12/01		0 458														
001	02/13/01		0 529														
001	02/14/01	10 10	0 611	CA	9 0	Grab	02/14/01	(0 204)	0.006	(0.031)	0.005	(0 026)	0 26	(1.326)	0 087	(0.444)	7.1
001	02/15/01		0 655														
001	02/16/01		0.538														
001	02/17/01		0 406														
001	02/18/01		0 423														
001	02/19/01		0 196														
001	02/20/01		0.213														
001	02/21/01		0 267														
001	02/22/01		0 361														
001	02/23/01		0 559														
001	02/24/01		0 483														
001	02/25/01		0 482														
001	02/26/01		0.296														
001	02/27/01		0.439														
001	02/28/01		0 549														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	02/01/01		No Discharge											
002	02/02/01		No Discharge											
002	02/03/01		No Discharge											
002	02/04/01		No Discharge											
002	02/05/01		No Discharge											
002	02/06/01		No Discharge											
002	02/07/01		No Discharge											
002	02/08/01		No Discharge											
002	02/09/01		No Discharge											
002	02/10/01		No Discharge											
002	02/11/01		No Discharge											
002	02/12/01		No Discharge											
002	02/13/01		No Discharge											
002	02/14/01		No Discharge											
002	02/15/01		No Discharge											
002	02/16/01		No Discharge											
002	02/17/01		No Discharge											
002	02/18/01		No Discharge											
002	02/19/01		No Discharge											
002	02/20/01		No Discharge											
002	02/21/01		No Discharge											
002	02/22/01		No Discharge											
002	02/23/01		No Discharge											
002	02/24/01		No Discharge											
002	02/25/01		No Discharge											
002	02/26/01		No Discharge											
002	02/27/01		No Discharge											
002	02/28/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	02/01/01		1.090			72							
003	02/02/01		1.033			71							
003	02/03/01		1.019										
003	02/04/01		1.564										
003	02/05/01		0 835			72							
003	02/06/01		0 793			62							
003	02/07/01		0 949			64							
003	02/08/01	8 50	0 920	CA	7.5	74	Grab	02/08/01					
003	02/09/01		1 048			76							
003	02/10/01		1.045										
003	02/11/01		1.086										
003	02/12/01		1 005			75							
003	02/13/01		1 163			80							
003	02/14/01	10 20	1 029	CA	7 5	80	Grab	02/14/01	0 030	<0 005	<0 005	<0 01	<0 005
003	02/15/01		0 957			78							
003	02/16/01		1 765			70							
003	02/17/01		1.328										
003	02/18/01		1 134										
003	02/19/01		0 954			74							
003	02/20/01		1 454			69							
003	02/21/01	10 00	0 648	CA	7 4	68	Grab	02/21/01					
003	02/22/01		1 133			70							
003	02/23/01		1.003			68							
003	02/24/01		1.205										
003	02/25/01		1.144										
003	02/26/01		1 140			66							
003	02/27/01		1 198			70							
003	02/28/01	10 35	1 105	CA	7 3	64	Grab	02/28/01					

001 pH analyzed 2/14/01 10 45 *EPA Method 150.1*, TSS analyzed 2/14/01 *EPA Method 160.2*
Metals analyzed 2/28/01 *EPA Method 200.7*
003 pH analyzed 2/14/01 *EPA Method 150.1*, metals analyzed 2/28/01 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME. LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 01/01/01 To 01/31/01

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	01/01/01		0 169														
001	01/02/01		0 315														
001	01/03/01		0 184														
001	01/04/01		0 232														
001	01/05/01		0 425														
001	01/06/01		0 486														
001	01/07/01		0 544														
001	01/08/01		0 591														
001	01/09/01		0 458														
001	01/10/01		0 440														
001	01/11/01		0 436														
001	01/12/01		0 366														
001	01/13/01		0 461														
001	01/14/01		0.463														
001	01/15/01		0.257														
001	01/16/01		0 453														
001	01/17/01		0 382														
001	01/18/01		0 397														
001	01/19/01		0 426														
001	01/20/01		0.379														
001	01/21/01		0.413														
001	01/22/01		0 418														
001	01/23/01	**08 30	0 463	CA	8 7		Grab	01/23/01	(0 039)	0 009	(0 035)	0 008	(0 031)	0 120	(0 464)	0 036	(0.139)	3 9
001	01/24/01		0 340														
001	01/25/01		0.316														
001	01/26/01		0.308														
001	01/27/01		0 215														
001	01/28/01		0.422														
001	01/29/01		0.431														
001	01/30/01		0.503														
001	01/31/01		0.340														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	01/01/01		No Discharge											
002	01/02/01		No Discharge											
002	01/03/01		No Discharge											
002	01/04/01		No Discharge											
002	01/05/01		No Discharge											
002	01/06/01		No Discharge											
002	01/07/01		No Discharge											
002	01/08/01		No Discharge											
002	01/09/01		No Discharge											
002	01/10/01		No Discharge											
002	01/11/01		No Discharge											
002	01/12/01		No Discharge											
002	01/13/01		No Discharge											
002	01/14/01		No Discharge											
002	01/15/01		No Discharge											
002	01/16/01		No Discharge											
002	01/17/01		No Discharge											
002	01/18/01		No Discharge											
002	01/19/01		No Discharge											
002	01/20/01		No Discharge											
002	01/21/01		No Discharge											
002	01/22/01		No Discharge											
002	01/23/01		No Discharge											
002	01/24/01		No Discharge											
002	01/25/01		No Discharge											
002	01/26/01		No Discharge											
002	01/27/01		No Discharge											
002	01/28/01		No Discharge											
002	01/29/01		No Discharge											
002	01/30/01		No Discharge											
002	01/31/01		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	01/01/01		No Discharge			0							
003	01/02/01		No Discharge			0							
003	01/03/01		No Discharge			0							
003	01/04/01		No Discharge			0							
003	01/05/01	15 15	0.180	CA	7 3	65	Grab	01/05/01					
003	01/06/01		1 136										
003	01/07/01		0.972										
003	01/08/01		0 862			80							
003	01/09/01		0 819			80							
003	01/10/01		1 496			81							
003	01/11/01	8 40	0 658	CA	7.3	80	Grab	01/11/01					
003	01/12/01		1.114			72							
003	01/13/01		1.146										
003	01/14/01		1.193										
003	01/15/01		1.168			77							
003	01/16/01		1.388			82							
003	01/17/01		1.328			76							
003	01/18/01	8 50	1 081	CA	7 4	72	Grab	01/18/01					
003	01/19/01		0 918			72							
003	01/20/01		1.054										
003	01/21/01		0 950										
003	01/22/01		0 991			77							
003	01/23/01	5 40	1 057	CA	7 5	72	Grab	01/23/01	<0 01	<0 005	0 011	0 220	0 016
003	01/24/01		0.951			71							
003	01/25/01		1.208			72							
003	01/26/01		0 913			75							
003	01/27/01		1 197										
003	01/28/01		1 059										
003	01/29/01		0 986			75							
003	01/30/01		0 743			[illegible]							
003	01/31/01	5 00	0 916	CA	7 5	75	Grab	01/31/01					

*001 pH analyzed 1/22/01 (9 00) EPA Method 150.1.
TSS analyzed 1/22/01 EPA Method 160.2.
Metals analyzed 2/02/01 EPA Method 200.7
**003 pH analyzed 1/22/01 (9 00) EPA Method 150.1, metals analyzed 2/02/01 EPA Method 200.7
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME. LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 12/01/00 To 12/31/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	12/01/00		0 391														
001	12/02/00		0 401														
001	12/03/00		0 208														
001	12/04/00		0 215														
001	12/05/00		0 500														
001	12/06/00		0 248														
001	12/07/00	08 45	0 122	CA	8 6	Grab	12/07/00	(0 010)	0 025	(0 026)	0 008	(0.008)	0.410	(0 419)	0 228	(0 233)	2.7
001	12/08/00		0 186														
001	12/09/00		0.196														
001	12/10/00		0.425														
001	12/11/00		0 508														
001	12/12/00		0 363														
001	12/13/00		0.258														
001	12/14/00		0.349														
001	12/15/00		0 269														
001	12/16/00		0.294														
001	12/17/00		0 308														
001	12/18/00		0 285														
001	12/19/00		0 300														
001	12/20/00		0.346														
001	12/21/00		0.338														
001	12/22/00		0 215														
001	12/23/00		0.170														
001	12/24/00		0 171														
001	12/25/00		0.419														
001	12/26/00		0 318														
001	12/27/00		0.264														
001	12/28/00		0.311														
001	12/29/00		0.232														
001	12/30/00		0.298														
001	12/31/00		0.213														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	12/01/00		No Discharge											
002	12/02/00		No Discharge											
002	12/03/00		No Discharge											
002	12/04/00		No Discharge											
002	12/05/00		No Discharge											
002	12/06/00		No Discharge											
002	12/07/00		No Discharge											
002	12/08/00		No Discharge											
002	12/09/00		No Discharge											
002	12/10/00		No Discharge											
002	12/11/00		No Discharge											
002	12/12/00		No Discharge											
002	12/13/00		No Discharge											
002	12/14/00		No Discharge											
002	12/15/00		No Discharge											
002	12/16/00		No Discharge											
002	12/17/00		No Discharge											
002	12/18/00		No Discharge											
002	12/19/00		No Discharge											
002	12/20/00		No Discharge											
002	12/21/00		No Discharge											
002	12/22/00		No Discharge											
002	12/23/00		No Discharge											
002	12/24/00		No Discharge											
002	12/25/00		No Discharge											
002	12/26/00		No Discharge											
002	12/27/00		No Discharge											
002	12/28/00		No Discharge											
002	12/29/00		No Discharge											
002	12/30/00		No Discharge											
002	12/31/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	12/01/00		0.858			72							
003	12/02/00		1.835										
003	12/03/00		1.142										
003	12/04/00		0 480			71							
003	12/05/00		1.377			70							
003	12/06/00		1 105			71							
003	12/07/00	8 50 **	0 678	CA	7 4	71	Grab	12/07/00	<0 01	<0 005	<0 005	<0 01	<0 005
003	12/08/00		1 011			72							
003	12/09/00		0 938										
003	12/10/00		0 881										
003	12/11/00		0 933			72							
003	12/12/00		0.966			72							
003	12/13/00		0 983			72							
003	12/14/00	12 15	1 014	TW	7 1	71	Grab	12/14/00					
003	12/15/00		1.137			72							
003	12/16/00		0 788										
003	12/17/00		1.328										
003	12/18/00	8 15	1 135	CA	7 5	71	Grab	12/18/00					
003	12/19/00		1 097			74							
003	12/20/00		0 153			74							
003	12/21/00		No Discharge										
003	12/22/00		No Discharge										
003	12/23/00		No Discharge										
003	12/24/00		No Discharge										
003	12/25/00		No Discharge										
003	12/26/00		No Discharge										
003	12/27/00		No Discharge										
003	12/28/00		No Discharge										
003	12/29/00		No Discharge										
003	12/30/00		No Discharge										
003	12/31/00		No Discharge										

*001 pH analyzed 12/07/00 (8 45) *EPA Method 150.1*
TSS analyzed 12/07/00 EPA Method 160.2.
Metals analyzed 12/13/00 *EPA Method 200.7*
**003 pH analyzed 12/07/00 (9 15) *EPA Method 150.1*, metals analyzed 12/13/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St. Louis, Missouri Permit No. MO-0000281
FILE NUMBER: 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 11/01/00 To 11/30/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	11/01/00		0.325														
001	11/02/00		0.414														
001	11/03/00		0.332														
001	11/04/00		0.283														
001	11/05/00		0.329														
001	11/06/00		0.385														
001	11/07/00		0.338														
001	11/08/00		0.348														
001	11/09/00		0.362														
001	11/10/00		0.430														
001	11/11/00		0.419														
001	11/12/00		0.440														
001	11/13/00		0.341														
001	11/14/00		0.451														
001	11/15/00		0.390														
001	11/16/00		0.515														
001	11/17/00		0.590														
001	11/18/00		0.228														
001	11/19/00		0.274														
001	11/20/00		0.277														
001	11/21/00		0.268														
001	11/22/00		0.310														
001	11/23/00		0.258														
001	11/24/00		0.446														
001	11/25/00		0.409														
001	11/26/00		0.384														
001	11/27/00		0.421														
001	11/28/00		0.417														
001	11/29/00	13 30	0.516	CA	8.7	Grab	11/29/00	(0.043)	0.041	(0.177)	0.021	(0.090)	0.560	(2.411)	0.195	(0.839)	4.3
001	11/30/00		0.492														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	11/01/00		No Discharge											
002	11/02/00		No Discharge											
002	11/03/00		No Discharge											
002	11/04/00		No Discharge											
002	11/05/00		No Discharge											
002	11/06/00		No Discharge											
002	11/07/00		No Discharge											
002	11/08/00		No Discharge											
002	11/09/00		No Discharge											
002	11/10/00		No Discharge											
002	11/11/00		No Discharge											
002	11/12/00		No Discharge											
002	11/13/00		No Discharge											
002	11/14/00		No Discharge											
002	11/15/00		No Discharge											
002	11/16/00		No Discharge											
002	11/17/00		No Discharge											
002	11/18/00		No Discharge											
002	11/19/00		No Discharge											
002	11/20/00		No Discharge											
002	11/21/00		No Discharge											
002	11/22/00		No Discharge											
002	11/23/00		No Discharge											
002	11/24/00		No Discharge											
002	11/25/00		No Discharge											
002	11/26/00		No Discharge											
002	11/27/00		No Discharge											
002	11/28/00		No Discharge											
002	11/29/00		No Discharge											
002	11/30/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	11/01/00		1.524			84							
003	11/02/00	16 18	1.383	CA	7.3	84	Grab	11/02/00					
003	11/03/00		1.235			85							
003	11/04/00		1.343										
003	11/05/00		1.284										
003	11/06/00		1.597			82							
003	11/07/00		1.346			70							
003	11/08/00		1.287			79							
003	11/09/00	13 15	1.400	CA	7.2	78	Grab	11/09/00					
003	11/10/00		1.482			77							
003	11/11/00		1.428										
003	11/12/00		1.263										
003	11/13/00		1.382			76							
003	11/14/00		1.311			75							
003	11/15/00		1.517			74							
003	11/16/00	12 30	1.418	CA	7.3	75	Grab	11/16/00					
003	11/17/00		0.831			73							
003	11/18/00		1.294										
003	11/19/00		1.263										
003	11/20/00	14 20	1.172	CA	7.3	75	Grab	11/20/00					
003	11/21/00		1.179			70							
003	11/22/00		1.161			72							
003	11/23/00		1.206			71							
003	11/24/00		1.233			80							
003	11/25/00		1.854										
003	11/26/00		0.788										
003	11/27/00		1.207			65							
003	11/28/00		1.120			75							
003	11/29/00		1.110			70							
003	11/30/00	0 40	1.499	CA	7.5	74	Grab	11/30/00	<0.01	<0.005	<0.005	<0.01	<0.005

*001 pH analyzed 11/29/00 (14:00) *EPA Method 150.1*
TSS analyzed 11/29/00 EPA Method 160.2.
Metals analyzed 12/26/00 *EPA Method 200.7*
**003 pH analyzed 10/15/00 (10:00) *EPA Method 150.1*, metals analyzed 10/26/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER. 3,500 JEFFERSON POINTS 001 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD 10/01/00 To 10/31/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH		Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	10/01/00		0.325															
001	10/02/00		0 414															
001	10/03/00		0.332															
001	10/04/00		0 283															
001	10/05/00		0 329															
001	10/06/00		0.385															
001	10/07/00		0.338															
001	10/08/00		0.346															
001	10/09/00		0.362															
001	10/10/00		0.430															
001	10/11/00		0 419															
001	10/12/00		0 440															
001	10/13/00		0.341															
001	10/14/00		0.451															
001	10/15/00		0.390															
001	10/16/00		0.515															
001	10/17/00	**13 50	0.590	TW	9.5		Grab	10/17/00	(0 049)	0 014	(0 069)	0 005	(0 025)	0 110	(0 541)	0 074	(0 364)	4 9
001	10/18/00		0 228															
001	10/19/00		0 274															
001	10/20/00		0.277															
001	10/21/00		0.268															
001	10/22/00		0.310															
001	10/23/00		0.258															
001	10/24/00		0.446															
001	10/25/00		0 409															
001	10/26/00		0.384															
001	10/27/00		0 421															
001	10/28/00		0.417															
001	10/29/00		0.518															
001	10/30/00		0.492															
001	10/31/00		0.357															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	10/01/00		No Discharge											
002	10/02/00		No Discharge											
002	10/03/00		No Discharge											
002	10/04/00		No Discharge											
002	10/05/00		No Discharge											
002	10/06/00		No Discharge											
002	10/07/00		No Discharge											
002	10/08/00		No Discharge											
002	10/09/00		No Discharge											
002	10/10/00		No Discharge											
002	10/11/00		No Discharge											
002	10/12/00		No Discharge											
002	10/13/00		No Discharge											
002	10/14/00		No Discharge											
002	10/15/00		No Discharge											
002	10/16/00		No Discharge											
002	10/17/00		No Discharge											
002	10/18/00		No Discharge											
002	10/19/00		No Discharge											
002	10/20/00		No Discharge											
002	10/21/00		No Discharge											
002	10/22/00		No Discharge											
002	10/23/00		No Discharge											
002	10/24/00		No Discharge											
002	10/25/00		No Discharge											
002	10/26/00		No Discharge											
002	10/27/00		No Discharge											
002	10/28/00		No Discharge											
002	10/29/00		No Discharge											
002	10/30/00		No Discharge											
002	10/31/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	10/01/00		1.215										
003	10/02/00		1.114			82							
003	10/03/00		1.478			81							
003	10/04/00	9 50	1.956	CA	7.2	71	Grab	10/04/00					
003	10/05/00		0.721			86							
003	10/06/00		1.360			76							
003	10/07/00		1.397										
003	10/08/00		1 285										
003	10/09/00		1 268			77							
003	10/10/00		1 265			76							
003	10/11/00		1 297			77							
003	10/12/00	10 40	1 364	CA	7 4	80	Grab	10/12/00					
003	10/13/00		1 361			80							
003	10/14/00		1 340										
003	10/15/00		1.483										
003	10/16/00		0 769			70							
003	10/17/00		1.328			72							
003	10/18/00	***10 00	0.384	CA	7.5	76	Grab	10/18/00	<0 01	<0 005	<0 005	<0 01	<0 005
003	10/19/00		1.069			74							
003	10/20/00		0 531			74							
003	10/21/00		0 588										
003	10/22/00		0 510										
003	10/23/00		0.803			88							
003	10/24/00	9 00	1 335	CA	7 4	89	Grab	10/24/00					
003	10/25/00		1.227			89							
003	10/26/00		1 151			86							
003	10/27/00		1 109			83							
003	10/28/00		1 100										
003	10/29/00		1 182										
003	10/30/00		1 178			81							
003	10/31/00		0 947			84							

*001 pH analyzed 10/17/00 (**13 50) *EPA Method 150.1*
TSS analyzed 10/17/00 EPA Method 160.2.
Metals analyzed 10/26/00 *EPA Method 200.7*
003 pH analyzed 10/18/00 (10 00) *EPA Method 150.1*, metals analyzed 10/26/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 09/01/00 To 09/30/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	09/01/00		0.309														
001	09/02/00		0.384														
001	09/03/00		0 116														
001	09/04/00		0 362														
001	09/05/00		0 321														
001	09/06/00		0 185														
001	09/07/00	14 00*	0 327	CA	8 8		09/07/00										
001	09/08/00		0.306														
001	09/09/00		0 279														
001	09/10/00		0.263														
001	09/11/00		0.366														
001	09/12/00		0.474														
001	09/13/00		0.274														
001	09/14/00	15 30*	0.264	CA	8.5	Grab	09/14/00	(0.023)	0 005	(0.012)	0.008	(0 019)	0.010	(0.023)	0.090	(0.228)	2 3
001	09/15/00		0.382														
001	09/16/00		0.466														
001	09/17/00		0.413														
001	09/18/00		0 244														
001	09/19/00		0.386														
001	09/20/00		0.331														
001	09/21/00		0.162														
001	09/22/00		0.265														
001	09/23/00		0.259														
001	09/24/00		0 307														
001	09/25/00		0 495														
001	09/26/00		0.619														
001	09/27/00		0.325														
001	09/28/00		0.422														
001	09/29/00		0.398														
001	09/30/00		0.375														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	09/01/00		No Discharge											
002	09/02/00		No Discharge											
002	09/03/00		No Discharge											
002	09/04/00		No Discharge											
002	09/05/00		No Discharge											
002	09/06/00		No Discharge											
002	09/07/00		No Discharge											
002	09/08/00		No Discharge											
002	09/09/00		No Discharge											
002	09/10/00		No Discharge											
002	09/11/00		No Discharge											
002	09/12/00		No Discharge											
002	09/13/00		No Discharge											
002	09/14/00		No Discharge											
002	09/15/00		No Discharge											
002	09/16/00		No Discharge											
002	09/17/00		No Discharge											
002	09/18/00		No Discharge											
002	09/19/00		No Discharge											
002	09/20/00		No Discharge											
002	09/21/00		No Discharge											
002	09/22/00		No Discharge											
002	09/23/00		No Discharge											
002	09/24/00		No Discharge											
002	09/25/00		No Discharge											
002	09/26/00		No Discharge											
002	09/27/00		No Discharge											
002	09/28/00		No Discharge											
002	09/29/00		No Discharge											
002	09/30/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	09/01/00		1.060			93							
003	09/02/00		1.764										
003	09/03/00		1 145										
003	09/04/00		1 382			96							
003	09/05/00		1 429			90							
003	09/06/00		1 571			90							
003	09/07/00	14 10	0.946	CA	7.3	90	Grab	09/07/00					
003	09/08/00		1 493			76							
003	09/09/00		1.476										
003	09/10/00		1.336										
003	09/11/00		1.345			91							
003	09/12/00		1.522			87							
003	09/13/00		1.285			81							
003	09/14/00	15 38**	1.322	CA	7.6	88	Grab	09/14/00	<0.01	<0 005	0 008	0 050	0 019
003	09/15/00		1 322			86							
003	09/16/00		1.281										
003	09/17/00		1 328										
003	09/18/00		1.783			83							
003	09/19/00		1.332			86							
003	09/20/00		0 968			82							
003	09/21/00	8 20	1.409	CA	7.6	84	Grab	09/21/00					
003	09/22/00		1.409			86							
003	09/23/00		1 480										
003	09/24/00		1.270										
003	09/25/00	8 50	1 480	CA	7.2	80	Grab	09/25/00					
003	09/26/00		1.346			82							
003	09/27/00		1 472			83							
003	09/28/00		1.284			82							
003	09/29/00		1 426			82							
003	09/30/00		1.950										

*001 pH analyzed 9/07/00 (14 30) 9/14/00 (16.00) *EPA Method 150.1*.
TSS analyzed 9/14/00 EPA Method 160.2.
Metals analyzed 9/27/00 *EPA Method 200.7* Arsenic analyzed 9/27/00 *EPA Method 200.7*
**003 pH analyzed 9/14/00 (16 00) *EPA Method 150.1*, metals analyzed 9/27/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD 08/01/00 To 08/31/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH		Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	08/01/00		0.362															
001	08/02/00		0.288															
001	08/03/00		0.322															
001	08/04/00		0.257															
001	08/05/00		0.457															
001	08/06/00		0.400															
001	08/07/00		0.577															
001	08/08/00		0.370															
001	08/09/00		0.438															
001	08/10/00		0.296															
001	08/11/00	8 20 *	0.508	CA	10.0		Grab	8/11/00	(0.037)	0.005	(0.018)	0.005	(0.018)	0.180	(0.658)	0.005	(0.018)	3.7
001	08/12/00		0.475															
001	08/13/00		0.398															
001	08/14/00		0.329															
001	08/15/00		0.490															
001	08/16/00		0.413															
001	08/17/00		0.029															
001	08/18/00		0.282															
001	08/19/00		0.553															
001	08/20/00		0.342															
001	08/21/00		0.383															
001	08/22/00		0.377															
001	08/23/00		0.295															
001	08/24/00		0.440															
001	08/25/00		0.335															
001	08/26/00		0.246															
001	08/27/00		0.213															
001	08/28/00		0.318															
001	08/29/00		0.309															
001	08/30/00		0.307															
001	08/31/00		0.235															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	08/01/00		No Discharge											
002	08/02/00		No Discharge											
002	08/03/00		No Discharge											
002	08/04/00		No Discharge											
002	08/05/00		No Discharge											
002	08/06/00		No Discharge											
002	08/07/00		No Discharge											
002	08/08/00		No Discharge											
002	08/09/00		No Discharge											
002	08/10/00		No Discharge											
002	08/11/00		No Discharge											
002	08/12/00		No Discharge											
002	08/13/00		No Discharge											
002	08/14/00		No Discharge											
002	08/15/00		No Discharge											
002	08/16/00		No Discharge											
002	08/17/00		No Discharge											
002	08/18/00		No Discharge											
002	08/19/00		No Discharge											
002	08/20/00		No Discharge											
002	08/21/00		No Discharge											
002	08/22/00		No Discharge											
002	08/23/00		No Discharge											
002	08/24/00		No Discharge											
002	08/25/00		No Discharge											
002	08/26/00		No Discharge											
002	08/27/00		No Discharge											
002	08/28/00		No Discharge											
002	08/29/00		No Discharge											
002	08/30/00		No Discharge											
002	08/31/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	08/01/00		1.418			88							
003	08/02/00		1.015			94							
003	08/03/00		1.834			98							
003	08/04/00	16 15	1.489	CA	7.3	85	Grab	08/04/00					
003	08/05/00		1.729										
003	08/06/00		1.307										
003	08/07/00		1.493			95							
003	08/08/00		2.160			90							
003	08/09/00		0.861			93							
003	08/10/00		1.530			90							
003	08/11/00	08 45 **	1.382	CA	7.4	90	Grab	08/11/00	<0.01	<0.005	<0.005	<0.01	<0.005
003	08/12/00		1.376										
003	08/13/00		1.481										
003	08/14/00		1.366			88							
003	08/15/00		1.527			95							
003	08/16/00		1.261			98							
003	08/17/00		2.039			98							
003	08/18/00	14 05	1.543	CA	7.3	98	Grab	08/18/00					
003	08/19/00		0.997										
003	08/20/00		1.245										
003	08/21/00		1.838			89							
003	08/22/00		1.087			92							
003	08/23/00		1.158			94							
003	08/24/00	11 45	1.225	CA	7.3	89	Grab	08/24/00					
003	08/25/00		1.335			94							
003	08/26/00		1.335										
003	08/27/00		1.465										
003	08/28/00		1.463			96							
003	08/29/00		1.322			96							
003	08/30/00	9 40	1.447	CA	7.4	106	Grab	08/30/00					
003	08/31/00		2.013			100							

*001 pH analyzed 8/11/00 (09 00) *EPA Method 150.1*, TSS analyzed 8/11/00 *EPA Method 160.2*.
Metals analyzed 9/11/00 *EPA Method 200.7* Arsenic analyzed 9/11/00 *EPA Method 200.7*
**003 pH analyzed 8/11/00 (09 00) *EPA Method 150.1*, metals analyzed 9/11/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER. 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 07/01/00 To 07/30/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	07/01/00		0.473														
001	07/02/00		0.599														
001	07/03/00		0.432														
001	07/04/00		0.384														
001	07/05/00		0.343														
001	07/06/00		0.348														
001	07/07/00		0.350														
001	07/08/00		0.233														
001	07/09/00		0.310														
001	07/10/00		0.384														
001	07/11/00		0.471														
001	07/12/00		0.580														
001	07/13/00		0.450														
001	07/14/00	12:50 *	0.529	CA	9.4	Grab	07/14/00	(0.026)	0.005	(0.013)	0.005	(0.013)	0.080	(0.207)	0.015	(0.039)	2.6
001	07/15/00		0.517														
001	07/16/00		0.287														
001	07/17/00		0.535														
001	07/18/00		0.520														
001	07/19/00		0.503														
001	07/20/00		0.340														
001	07/21/00		0.485														
001	07/22/00		0.516														
001	07/23/00		0.410														
001	07/24/00		0.403														
001	07/25/00		0.342														
001	07/26/00		0.371														
001	07/27/00		0.336														
001	07/28/00		0.420														
001	07/29/00		0.397														
001	07/30/00		0.372														
001	07/31/00		0.428														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	07/01/00		No Discharge											
002	07/02/00		No Discharge											
002	07/03/00		No Discharge											
002	07/04/00		No Discharge											
002	07/05/00		No Discharge											
002	07/06/00		No Discharge											
002	07/07/00		No Discharge											
002	07/08/00		No Discharge											
002	07/09/00		No Discharge											
002	07/10/00		No Discharge											
002	07/11/00		No Discharge											
002	07/12/00		No Discharge											
002	07/13/00		No Discharge											
002	07/14/00		No Discharge											
002	07/15/00		No Discharge											
002	07/16/00		No Discharge											
002	07/17/00		No Discharge											
002	07/18/00		No Discharge											
002	07/19/00		No Discharge											
002	07/20/00		No Discharge											
002	07/21/00		No Discharge											
002	07/22/00		No Discharge											
002	07/23/00		No Discharge											
002	07/24/00		No Discharge											
002	07/25/00		No Discharge											
002	07/26/00		No Discharge											
002	07/27/00		No Discharge											
002	07/28/00		No Discharge											
002	07/29/00		No Discharge											
002	07/30/00		No Discharge											
002	07/31/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	07/01/00		1.332			89							
003	07/02/00		1.387			90							
003	07/03/00		1.299										
003	07/04/00		1.812										
003	07/05/00		1.615			91							
003	07/06/00		1.165			87							
003	07/07/00	10:00	1.370	CA	7.4	89	Grab	07/07/00					
003	07/08/00		1.574			88							
003	07/09/00		1.670			87							
003	07/10/00		1.521										
003	07/11/00		1.587										
003	07/12/00		1.587			88							
003	07/13/00		1.534			90							
003	07/14/00	12:58 **	1.494	CA	7.5	89	Grab	07/14/00	<0.01	<0.005	<0.005	0.040	0.008
003	07/15/00		1.482			90							
003	07/16/00		1.625			89							
003	07/17/00		1.715										
003	07/18/00		1.409										
003	07/19/00		1.953			89							
003	07/20/00	13:00	1.449	CA	7.3	88	Grab	07/20/00					
003	07/21/00		1.422			85							
003	07/22/00		0.993			84							
003	07/23/00		1.491			83							
003	07/24/00		1.452										
003	07/25/00		1.434										
003	07/26/00	10:00	1.435	CA	7.5	78	Grab	07/26/00					
003	07/27/00		1.622			81							
003	07/28/00		1.575			88							
003	07/29/00		1.630			85							
003	07/30/00		1.454			88							
003	07/31/00		1.613			85							

*001 pH analyzed 7/14/00 (10:15) *EPA Method 150.1*, TSS analyzed 7/14/00 *EPA Method 160.2*.
Metals analyzed 8/23/00 *EPA Method 200.7* Arsenic analyzed 7/25/00 *EPA Method 200.7*
**003 pH analyzed 7/14/00 (10:15) *EPA Method 150.1*, metals analyzed 8/23/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 06/01/00 To 06/30/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	06/01/00		0.467														
001	06/02/00		0.485														
001	06/03/00		0.328														
001	06/04/00		0.578														
001	06/05/00		0.260														
001	06/06/00		0.347														
001	06/07/00		0.407														
001	06/08/00		0.404														
001	06/09/00		0.383														
001	06/10/00		0.352														
001	06/11/00		0.412														
001	06/12/00		0.403														
001	06/13/00		0.305														
001	06/14/00		0.359														
001	06/15/00	14 00 *	0.304	CA	9.6	Grab	6/15/00	(0.032)	0.007	(0.022)	0.005	(0.016)	0.070	(0.224)	0.027	(0.080)	4.5
001	06/16/00		0.643														
001	06/17/00		0.912														
001	06/18/00		0.634														
001	06/19/00		0.413														
001	06/20/00		0.406														
001	06/21/00		0.556														
001	06/22/00		0.484														
001	06/23/00		0.459														
001	06/24/00		0.493														
001	06/25/00		0.518														
001	06/26/00		0.603														
001	06/27/00		0.421														
001	06/28/00		0.351														
001	06/29/00		0.482														
001	06/30/00		0.415														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	06/01/00		No Discharge											
002	06/02/00		No Discharge											
002	06/03/00		No Discharge											
002	06/04/00		No Discharge											
002	06/05/00		No Discharge											
002	06/06/00		No Discharge											
002	06/07/00		No Discharge											
002	06/08/00		No Discharge											
002	06/09/00		No Discharge											
002	06/10/00		No Discharge											
002	06/11/00		No Discharge											
002	06/12/00		No Discharge											
002	06/13/00		No Discharge											
002	06/14/00		No Discharge											
002	06/15/00		No Discharge											
002	06/16/00		No Discharge											
002	06/17/00		No Discharge											
002	06/18/00		No Discharge											
002	06/19/00		No Discharge											
002	06/20/00		No Discharge											
002	06/21/00		No Discharge											
002	06/22/00		No Discharge											
002	06/23/00		No Discharge											
002	06/24/00		No Discharge											
002	06/25/00		No Discharge											
002	06/26/00		No Discharge											
002	06/27/00		No Discharge											
002	06/28/00		No Discharge											
002	06/29/00		No Discharge											
002	06/30/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	06/01/00		1.271			82							
003	06/02/00		1.318			82							
003	06/03/00		1.668										
003	06/04/00		0.762										
003	06/05/00		1.779			80							
003	06/06/00		0.893			79							
003	06/07/00		1.274			81							
003	06/08/00	13 15	1.402	CA	7.4	82	Grab	06/08/00					
003	06/09/00		1.330			91							
003	06/10/00		1.401										
003	06/11/00		1.433										
003	06/12/00		1.353			84							
003	06/13/00		1.569			90							
003	06/14/00		1.333			85							
003	06/15/00	14 00 **	1.468	CA	7.6	89	Grab	06/15/00	0.030	0.005	0.006	0.040	0.021
003	06/16/00		1.451			90							
003	06/17/00		1.848										
003	06/18/00		1.617										
003	06/19/00		1.429			88							
003	06/20/00		1.693			88							
003	06/21/00		1.744			88							
003	06/22/00	14 30	1.152	CA	7.4	90	Grab	06/22/00					
003	06/23/00		1.429			91							
003	06/24/00		1.283										
003	06/25/00		1.386										
003	06/26/00		2.042			90							
003	06/27/00		0.890			90							
003	06/28/00		1.239			88							
003	06/29/00	15 15	1.346	CA	7.3	88	Grab	06/29/00					
003	06/30/00		1.390			88							

*001 pH analyzed 6/15/00 (17 00) *EPA Method 150.1*, TSS analyzed 6/15/00 *EPA Method 160.2*.
Metals analyzed 7/24/00 *EPA Method 200.7* Arsenic analyzed 7/25/00 *EPA Method 200.7*
**003 pH analyzed 6/15/00 (17 00) *EPA Method 150.1*, metals analyzed 7/24/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER. The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER. 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 06/01/00 To 06/30/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	06/01/00		0 467														
001	06/02/00		0 485														
001	06/03/00		0 328														
001	06/04/00		0.578														
001	06/05/00		0 260														
001	06/06/00		0.347														
001	06/07/00		0 407														
001	06/08/00		0 404														
001	06/09/00		0 383														
001	06/10/00		0 352														
001	06/11/00		0 412														
001	06/12/00		0.403														
001	06/13/00		0 305														
001	06/14/00		0 359														
001	06/15/00	14 00 *	0 304	CA	9.6	Grab	6/15/00	(0.032)	0 007	(0 022)	0 005	(0 016)	0 070	(0.224)	0 027	(0.086)	4 5
001	06/16/00		0.643														
001	06/17/00		0.912														
001	06/18/00		0 834														
001	06/19/00		0.413														
001	06/20/00		0.406														
001	06/21/00		0.556														
001	06/22/00		0 484														
001	06/23/00		0 459														
001	06/24/00		0.493														
001	06/25/00		0 518														
001	06/26/00		0 603														
001	06/27/00		0 421														
001	06/28/00		0 351														
001	06/29/00		0.482														
001	06/30/00		0.415														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	06/01/00		No Discharge											
002	06/02/00		No Discharge											
002	06/03/00		No Discharge											
002	06/04/00		No Discharge											
002	06/05/00		No Discharge											
002	06/06/00		No Discharge											
002	06/07/00		No Discharge											
002	06/08/00		No Discharge											
002	06/09/00		No Discharge											
002	06/10/00		No Discharge											
002	06/11/00		No Discharge											
002	06/12/00		No Discharge											
002	06/13/00		No Discharge											
002	06/14/00		No Discharge											
002	06/15/00		No Discharge											
002	06/16/00		No Discharge											
002	06/17/00		No Discharge											
002	06/18/00		No Discharge											
002	06/19/00		No Discharge											
002	06/20/00		No Discharge											
002	06/21/00		No Discharge											
002	06/22/00		No Discharge											
002	06/23/00		No Discharge											
002	06/24/00		No Discharge											
002	06/25/00		No Discharge											
002	06/26/00		No Discharge											
002	06/27/00		No Discharge											
002	06/28/00		No Discharge											
002	06/29/00		No Discharge											
002	06/30/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	06/01/00		1 271			82							
003	06/02/00		1 318			82							
003	06/03/00		1 668										
003	06/04/00		0 762										
003	06/05/00		1 779			80							
003	06/06/00		0 893			79							
003	06/07/00		1.274			81							
003	06/08/00	13 15	1 402	CA	7 4	82	Grab	06/08/00					
003	06/09/00		1.330			91							
003	06/10/00		1.401										
003	06/11/00		1.433										
003	06/12/00		1.353			84							
003	06/13/00		1.569			90							
003	06/14/00		1.333			85							
003	06/15/00	14 00 **	1 466	CA	7.6	89	Grab	06/15/00	0.030	0 005	0.006	0 040	0 021
003	06/16/00		1.451			90							
003	06/17/00		1 848										
003	06/18/00		1 617										
003	06/19/00		1.429			88							
003	06/20/00		1 593			88							
003	06/21/00		1 744			88							
003	06/22/00	14 30	1 152	CA	7 4	90	Grab	06/22/00					
003	06/23/00		1 429			91							
003	06/24/00		1.283										
003	06/25/00		1 386										
003	06/26/00		2 042			90							
003	06/27/00		0 890			90							
003	06/28/00		1.239			88							
003	06/29/00	[illegible]	1 346	CA	7.3	88	Grab	06/29/00					
003	06/30/00		1.390			88							

*001 pH analyzed 6/15/00 (17 00) *EPA Method 150.1*, TSS analized 6/15/00 *EPA Method 160.2*,
Metals analyzed 7/24/00 *EPA Method 200.7* Arsenic analyzed 7/25/00 *EPA Method 200.7*
**003 pH analyzed 6/15/00 (17 00) *EPA Method 150.1*, metals analyzed 7/24/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD 05/01/00 To 05/31/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	05/01/00		0.479														
001	05/02/00		0.378														
001	05/03/00		0.393														
001	05/04/00		0.494														
001	05/05/00		0.451														
001	05/06/00		0.331														
001	05/07/00		0.702														
001	05/08/00		0.400														
001	05/09/00		0.469														
001	05/10/00		0.434														
001	05/11/00	12 45 *	0.456	CA	8.9	Grab	05/11/00	(0.039)	0.006	(0.023)	0.004	(0.016)	0.180	(0.704)	0.028	(0.110)	5.1
001	05/12/00		0.558														
001	05/13/00		0.457														
001	05/14/00		0.502														
001	05/15/00		0.425														
001	05/16/00		0.410														
001	05/17/00		0.367														
001	05/18/00		0.371														
001	05/19/00		0.393														
001	05/20/00		0.437														
001	05/21/00		0.442														
001	05/22/00		0.425														
001	05/23/00		0.478														
001	05/24/00		0.358														
001	05/25/00		0.454														
001	05/26/00		0.676														
001	05/27/00		0.898														
001	05/28/00		0.552														
001	05/29/00		0.398														
001	05/30/00		0.365														
001	05/31/00		0.496														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	05/01/00		No Discharge											
002	05/02/00		No Discharge											
002	05/03/00		No Discharge											
002	05/04/00		No Discharge											
002	05/05/00		No Discharge											
002	05/06/00		No Discharge											
002	05/07/00		No Discharge											
002	05/08/00		No Discharge											
002	05/09/00		No Discharge											
002	05/10/00		No Discharge											
002	05/11/00		No Discharge											
002	05/12/00		No Discharge											
002	05/13/00		No Discharge											
002	05/14/00		No Discharge											
002	05/15/00		No Discharge											
002	05/16/00		No Discharge											
002	05/17/00		No Discharge											
002	05/18/00		No Discharge											
002	05/19/00		No Discharge											
002	05/20/00		No Discharge											
002	05/21/00		No Discharge											
002	05/22/00		No Discharge											
002	05/23/00		No Discharge											
002	05/24/00		No Discharge											
002	05/25/00		No Discharge											
002	05/26/00		No Discharge											
002	05/27/00		No Discharge											
002	05/28/00		No Discharge											
002	05/29/00		No Discharge											
002	05/30/00		No Discharge											
002	05/31/00													

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	05/01/00		1.280			79							
003	05/02/00		1.283			79							
003	05/03/00		1.239			79							
003	05/04/00		1.263			80							
003	05/05/00	09 00	1.251	CA	7.3	80	Grab	05/06/00					
003	05/06/00		1.711										
003	05/07/00		1.300										
003	05/08/00		1.642			80							
003	05/09/00		1.172			78							
003	05/10/00		1.277			64							
003	05/11/00	12 55 **	1.272	CA	7.4	85	Grab	05/11/00	0.010	<0.005	<0.005	0.020	0.002
003	05/12/00		1.296			84							
003	05/13/00		1.224										
003	05/14/00		1.300										
003	05/15/00		No Discharge			61							
003	05/16/00		No Discharge			81							
003	05/17/00		No Discharge			79							
003	05/18/00	13 33	2.163	CA	7.4	61	Grab	05/18/00					
003	05/19/00		0.453			60							
003	05/20/00		0.194										
003	05/21/00		1.163										
003	05/22/00		1.553			72							
003	05/23/00		1.479			60							
003	05/24/00	14 00	0.431	CA	7.3	81	Grab	05/24/00					
003	05/25/00		1.967			79							
003	05/26/00		1.378			80							
003	05/27/00		1.549										
003	05/28/00		1.425										
003	05/29/00		1.338			79							
003	05/30/00	*5 40	1.267	CA	7.3	79	Grab	05/30/00					
003	05/31/00		1.347			75							

*001 pH analyzed 5/11/00 12 10) *EPA Method 150.1*, TSS analyzed 5/11/00 *EPA Method 160.2*.
Metals analyzed 5/15/00 *EPA Method 200.7*
**003 pH analyzed 5/11/00 (12 15) *EPA Method 150.1*, metals analyzed 6/15/00 *EPA Method 200.7*
All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD 04/01/00 To 04/30/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	(lbs/day)	Copper mg/L	(lbs/day)	Lead mg/L	(lbs/day)	Zinc mg/L	(lbs/day)	TSS (lbs/day)
001	04/01/00		0 258															
001	04/02/00		0 285															
001	04/03/00		0.338															
001	04/04/00		0 284															
001	04/05/00		0 414															
001	04/06/00		0 441															
001	04/07/00		0 398															
001	04/08/00		0 409															
001	04/09/00		0 262															
001	04/10/00		0.363															
001	04/11/00		0 399															
001	04/12/00		0.451															
001	04/13/00		0.321															
001	04/14/00		0.388															
001	04/15/00		0.261															
001	04/16/00		0.508															
001	04/17/00		0.328															
001	04/18/00		0.362															
001	04/19/00		0.448															
001	04/20/00		0.346															
001	04/21/00		0.281															
001	04/22/00		0.166															
001	04/23/00		0.295															
001	04/24/00		0 472															
001	04/25/00	11 20 *	0.326	CA	9 63	72	Grab	5/23/00	(0 022)	0 005	(0 011)	0 005	(0.011)	0.090	(0 197)	0 037	(0.081)	0.9
001	04/26/00		0 337															
001	04/27/00		0.371															
001	04/28/00		0 306															
001	04/29/00		0.232															
001	04/30/00		0.362															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	04/01/00		No Discharge											
002	04/02/00		No Discharge											
002	04/03/00		No Discharge											
002	04/04/00		No Discharge											
002	04/05/00		No Discharge											
002	04/06/00		No Discharge											
002	04/07/00		No Discharge											
002	04/08/00		No Discharge											
002	04/09/00		No Discharge											
002	04/10/00		No Discharge											
002	04/11/00		No Discharge											
002	04/12/00		No Discharge											
002	04/13/00		No Discharge											
002	04/14/00		No Discharge											
002	04/15/00		No Discharge											
002	04/16/00		No Discharge											
002	04/17/00		No Discharge											
002	04/18/00		No Discharge											
002	04/19/00		No Discharge											
002	04/20/00		No Discharge											
002	04/21/00		No Discharge											
002	04/22/00		No Discharge											
002	04/23/00		No Discharge											
002	04/24/00		No Discharge											
002	04/25/00		No Discharge											
002	04/26/00		No Discharge											
002	04/27/00		No Discharge											
002	04/28/00		No Discharge											
002	04/29/00		No Discharge											
002	04/30/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	04/01/00		1.247										
003	04/02/00		1 169										
003	04/03/00		1 786			84							
003	04/04/00		1 106			79							
003	04/05/00		1 144			76							
003	04/06/00	7 20	0 625	CA	7 45	79	Grab	04/06/00					
003	04/07/00		1 218			78							
003	04/08/00		1 285										
003	04/09/00		1 282										
003	04/10/00		1.029			79							
003	04/11/00		1.159			78							
003	04/12/00		1.000			79							
003	04/13/00		1.234			69							
003	04/14/00	8 35	1.172	CA	7.3	79	Grab	04/14/00					
003	04/15/00		1.201										
003	04/16/00		1.200										
003	04/17/00		1.135			79							
003	04/18/00		1.232			80							
003	04/19/00		1 373			85							
003	04/20/00	12 28	1.346	CA	7 4	81	Grab	04/20/00					
003	04/21/00		0 626			76							
003	04/22/00		1 331										
003	04/23/00		1 134										
003	04/24/00		1.205			78							
003	04/25/00	11 25 **	0 969	CA	7.44	85	Grab	04/25/00	<0 01	<0 005	<0 005	<0 01	<0 005
003	04/26/00		1 442			73							
003	04/27/00		1 465			86							
003	04/28/00		1 334			87							
003	04/29/00		1 476										
003	04/30/00		1 451										

*001 pH analyzed 4/25/00 (11 20) *EPA Method 150.1*, TSS analized4/25/00 *EPA Method 160.2*, Metals analyzed 5/23/00 *EPA Method 200.7*
**003 pH analyzed 4/25/00 *EPA Method 150.1*, metals analyzed 5/23/00 *EPA Method 200.7*
*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 03/01/00 To 03/29/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH		Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	03/01/00		0.269															
001	03/02/00		0 396															
001	03/03/00		0 329															
001	03/04/00		0 404															
001	03/05/00		0 430															
001	03/06/00		0 327															
001	03/07/00		0 322															
001	03/08/00		0 329															
001	03/09/00		0.181															
001	03/10/00		0.516															
001	03/11/00		0 354															
001	03/12/00		0.397															
001	03/13/00		0 394															
001	03/14/00		0 322															
001	03/15/00		0 392															
001	03/16/00		0.324															
001	03/17/00		0.342															
001	03/18/00		0.357															
001	03/19/00		0 442															
001	03/20/00		0.535															
001	03/21/00		0.231															
001	03/22/00		0.279															
001	03/23/00		0.272															
001	*03/24/00*		*0 278*															
001	03/25/00		0 383															
001	03/26/00		0.403															
001	03/27/00		0.349															
001	03/28/00		0.348															
001	03/29/00		0.354															
001	03/30/00	09 00	0 361	CA	9.6		Grab	03/30/00	(0.030)	0.005	(0 008)	0.007	(0 011)	0.060	(0 091)	0.050	(0.085)	0.5
001	03/31/00		0.261															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	03/01/00		No Discharge											
002	03/02/00		No Discharge											
002	03/03/00		No Discharge											
002	03/04/00		No Discharge											
002	03/05/00		No Discharge											
002	03/06/00		No Discharge											
002	03/07/00		No Discharge											
002	03/08/00		*No Discharge*											
002	03/09/00		No Discharge											
002	03/10/00		No Discharge											
002	03/11/00		No Discharge											
002	03/12/00		No Discharge											
002	03/13/00		No Discharge											
002	03/14/00		No Discharge											
002	03/15/00		No Discharge											
002	03/16/00		No Discharge											
002	03/17/00		No Discharge											
002	03/18/00		No Discharge											
002	03/19/00		No Discharge											
002	03/20/00		No Discharge											
002	03/21/00		No Discharge											
002	03/22/00		No Discharge											
002	03/23/00		No Discharge											
002	03/24/00		No Discharge											
002	03/25/00		No Discharge											
002	03/26/00		No Discharge											
002	03/27/00		No Discharge											
002	03/28/00		No Discharge											
002	03/29/00		No Discharge											
002	03/30/00		No Discharge											
002	03/31/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	03/01/00		0 603			75							
003	03/02/00		0 592			75							
003	03/03/00	8 30	0 998	CA	7 3	76	Grab	03.03/00					
003	03/04 00		0 338										
003	03/05/00		0 554										
003	03/06/00		0 518			70							
003	03/07/00	17 30	0 611	CA	7.5	77	Grab	03/07/00					
003	03/08/00		0 374			78							
003	03/09/00		0 524			74							
003	03/10/00		0 589			71							
003	03/11/00		0.633										
003	03/12/00		0.556										
003	03/13/00		0 552			74							
003	03/14/00		0.507			75							
003	03/15/00		0.660			72							
003	03/16/00		0 599			73							
003	03/17/00	13 15	0.526	CA	7.3	73	Grab	03/17/00					
003	03/18/00		0 940										
003	03/19/00		0 683										
003	03/20/00		0 142			70							
003	03/21/00		No Discharge										
003	03/22/00		No Discharge										
003	03/23/00	14 00	0 550	CA	7 4	72	Grab	03.23/00					
003	03/24/00		0 557			72							
003	03/25/00		1 297										
003	03/26/00		0 749										
003	03/27/00		1 274			71							
003	03/28/00		1 229			65							
003	03/29/00		1 213			75							
003	03/30/00	9 15	1.235	CA	7 3	31	Grab	03/30/00	<0 005	<0 005	0 005	0 010	<0 005
003	03/31/00		1 287			75							

*001: pH analyzed 3/30/00 (10 00) *EPA Method 150.1* TSS analyzed 3/30/00 *EPA Method 160.2*.
Metals analyzed 4/25/00 *EPA Method 200.7*
**003 pH analyzed 3/30/00 *EPA Method 150.1*, metals analyzed 4/25/00 *EPA Method 200.7*
*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St. Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME. LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 02/01/00 To 02/29/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	(lbs/day)	Copper mg/L	(lbs/day)	Lead mg/L	(lbs/day)	Zinc mg/L	(lbs/day)	TSS (lbs/day)
001	02/01/00		0 294														
001	02/02/00		0 435														
001	02/03/00		0 602														
001	02/04 00		0 457														
001	02/05/00		0 537														
001	02/06/00		0 514														
001	02/07/00		0 412														
001	02/08/00		0 472														
001	02/09/00		0 360														
001	02/10/00	11 30	0 493	CA	9 6	Grab	02/10/00	(0 030)	0.005	(0.015)	0 019	(0 057)	0 010	(0.030)	0 043	(0.129)	
001	02/11/00		0 492														
001	02/12/00		0 321														
001	02/13/00		0.457														
001	02/14/00		0.352														
001	02/15/00		0.264														
001	02/16/00		0 270														
001	02/17/00		0.345														
001	02/18/00		0.604														
001	02/19/00		0.416														
001	02/20/00		0 400														
001	02/21/00		0 390														
001	02/22/00		0.314														
001	02/23/00		0 204														
001	02/24/00		0.280														
001	02/25/00		0.470														
001	02/26/00		0.447														
001	02/27/00		0.344														
001	02/28/00		0.380														
001	02/29/00		0.389														

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	02/01/00		No Discharge											
002	02/02/00		No Discharge											
002	02/03/00		No Discharge											
002	02/04/00		No Discharge											
002	02/05/00		No Discharge											
002	02/06/00		No Discharge											
002	02/07/00		No Discharge											
002	02/08/00		No Discharge											
002	02/09/00		No Discharge											
002	02/10/00		No Discharge											
002	02/11/00		No Discharge											
002	02/12/00		No Discharge											
002	02/13/00		No Discharge											
002	02/14/00		No Discharge											
002	02/15/00		No Discharge											
002	02/16/00		No Discharge											
002	02/17/00		No Discharge											
002	02/18/00		No Discharge											
002	02/19/00		No Discharge											
002	02/20/00		No Discharge											
002	02/21/00		No Discharge											
002	02/22/00		No Discharge											
002	02/23/00		No Discharge											
002	02/24/00		No Discharge											
002	02/25/00		No Discharge											
002	02/26/00		No Discharge											
002	02/27/00		No Discharge											
002	02/28/00		No Discharge											
002	02/29/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	02/01/00		0.918			74							
003	02/02/00		1.125			70							
003	02/03/00		1 035			70							
003	02/04 00	8 30	0 680	CA	7 2	69	Grab	02/04/00					
003	02/05/00		0 726										
003	02/06/00		1 032										
003	02/07/00		0 752			71							
003	02/08 00		0 864			73							
003	02/09/00		0 913			77							
003	02/10/00	11 40	0.890	CA	7.2	77	Grab	2/10/00 **	<0 01	<0 005	0.015	0 010	0 012
003	02/11/00		0.710			75							
003	02/12/00		0 691										
003	02/13/00		0.586										
003	02/14/00		0 735			76							
003	02/15/00		0 725			75							
003	02/16/00		0 739			78							
003	02/17/00		0 706			76							
003	02/18/00	15 20	0 742	CA	7.3	78	Grab	02/18/00					
003	02/19/00		0 603										
003	02/20/00		0 604										
003	02/21/00		0 912			76							
003	02/22/00		0 718			80							
003	02/23/00		0.539			72							
003	02/24/00	9 00	0 930	CA	7.3	78	Grab	02/24/00					
003	02/25/00		0 671			82							
003	02/26/00		0.512										
003	02/27/00		0 500										
003	02/28/00		0 517			80							
003	02/29/00		0 542			79							

*001 pH analyzed 2/10/00 (11 50) *EPA Method 150.1*, TSS analyzed 2/10/00 *EPA Method 160.2*, Metals analyzed 3/10/00 *EPA Method 200.7*
**003 pH analyzed 2/10/00 *EPA Method 150.1*, metals analyzed 3/10/00 *EPA Method 200.7*
*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER: The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD 01/01/00 To 01/31/00

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH		Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	01/01/00		0 492															
001	01/02/00		0 492															
001	01/03/00		0 492															
001	01/04/00		0 492															
001	01/05/00		0 492															
001	01/06/00		0 492															
001	01/07/00		0 492															
001	01/08/00		0.590															
001	01/09/00		0 274															
001	01/10/00	12.05	0.432	CA	9 4		Grab	1/26/00	(0.023)	0.005	(0.011)	0.012	(0 027)	0.040	(0 092)	0 059	(0 135)	6 6
001	01/11/00		0.396															
001	01/12/00		0.371															
001	01/13/00		0.363															
001	01/14/00		0.178															
001	01/15/00		0.378															
001	01/16/00		0 271															
001	01/17/00		0 325															
001	01/18/00		0.270															
001	01/19/00		0 400															
001	01/20/00		0.350															
001	01/21/00		0 462															
001	01/22/00		0.464															
001	01/23/00		0.432															
001	01/24/00		0 469															
001	01/25/00		0 476															
001	01/26/00		0.502															
001	01/27/00		0.498															
001	01/28/00		0 434															
001	01/29/00		0.474															
001	01/30/00		0.395															
001	01/31/00		0 399															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	01/01/00		No Discharge											
002	01/02/00		No Discharge											
002	01/03/00		No Discharge											
002	01/04/00		No Discharge											
002	01/05/00		No Discharge											
002	01/06/00		No Discharge											
002	01/07/00		No Discharge											
002	01/08/00		No Discharge											
002	01/09/00		No Discharge											
002	01/10/00		No Discharge											
002	01/11/00		No Discharge											
002	01/12/00		No Discharge											
002	01/13/00		No Discharge											
002	01/14/00		No Discharge											
002	01/15/00		No Discharge											
002	01/16/00		No Discharge											
002	01/17/00		No Discharge											
002	01/18/00		No Discharge											
002	01/19/00		No Discharge											
002	01/20/00		No Discharge											
002	01/21/00		No Discharge											
002	01/22/00		No Discharge											
002	01/23/00		No Discharge											
002	01/24/00		No Discharge											
002	01/25/00		No Discharge											
002	01/26/00		No Discharge											
002	01/27/00		No Discharge											
002	01/28/00		No Discharge											
002	01/29/00		No Discharge											
002	01/30/00		No Discharge											
002	01/31/00		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	01/01/00		0 806										
003	01/02/00		0 756										
003	01/03/00		1 075			63							
003	01/04/00		1 185			70							
003	01/05/00		0 202			70							
003	01/06/00		2 192			71							
003	01/07/00	16 42	0 874	CA	7.3	66	Grab	01/07/00					
003	01/08/00		1 166										
003	01/09/00		1.166										
003	01/10/00	11 55	1 123	CA	7 4	69	Grab	01/26/00	<0 01	<0 005	0 007	0 030	<0 005
003	01/11/00		1 024			66							
003	01/12/00		1.269			71							
003	01/13/00		1 342			76							
003	01/14/00		1.362			77							
003	01/15/00		1 260										
003	01/16/00		1 525										
003	01/17/00		1 426			73							
003	01/18/00		2.009			58							
003	01/19/00		1 029			72							
003	01/20/00		2 074			63							
003	01/21/00	10 25	0 893	CA	7.3	60	Grab	01/21/00					
003	01/22/00		0 472										
003	01/23/00		0 878										
003	01/24/00		0 840			71							
003	01/25/00		0 849			70							
003	01/26/00	15 15	0 827	CA	7 3	73	Grab	01/26/00					
003	01/27/00		0 784			69							
003	01/28/00		0 785			76							
003	01/29/00		0 797										
003	01/30/00		0 930										
003	01/31/00		0 903			76							

*001 pH analyzed 1/10/00 (12 15) *EPA Method 150.1*, TSS analyzed 1/10/00 *EPA Method 160.2*, Metals analyzed 1/26/00 *EPA Method 200.7*
**003 pH analyzed 1/10/00 *EPA Method 150.1*, metals analyzed 1/26/00 *EPA Method 200.7*
*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD. 12/01/99 To 12/31/99

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	12/01/99		0 309															
001	12/02/99		0 351															
001	12/03/99		0 117															
001	12/04/99		0 282															
001	12/05/99		0 331															
001	12/06/99		0 427															
001	12/07/99		0 359															
001	12/08/99		0 402															
001	12/09/99	12 30	0 513	CA	9 4		Grab	12/09/99	(0 043)	0.005	(0 021)	0 012	(0 051)	0 020	(0 086)	0 005	(0 021)	18 0
001	12/10/99		0 555															
001	12/11/99		0 913															
001	12/12/99		0.564															
001	12/13/99		0 508															
001	12/14/99		0 410															
001	12/15/99		0.520															
001	12/16/99		0.479															
001	12/17/99		0.314															
001	12/18/99		0 372															
001	12/19/99		0.487															
001	12/20/99		0 360															
001	12/21/99		0.310															
001	12/22/99		0 419															
001	12/23/99		0 227															
001	12/24/99		0.660															
001	12/25/99		0.495															
001	12/26/99		0.496															
001	12/27/99		0 429															
001	12/28/99		0.387															
001	12/29/99		0.359															
001	12/30/99		0 282															
001	12/31/99		0 308															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	12/01/99		No Discharge											
002	12/02/99		No Discharge											
002	12/03/99		No Discharge											
002	12/04/99		No Discharge											
002	12/05/99		No Discharge											
002	12/06/99		No Discharge											
002	12/07/99		No Discharge											
002	12/08/99		No Discharge											
002	12/09/99		No Discharge											
002	12/10/99		No Discharge											
002	12/11/99		No Discharge											
002	12/12/99		No Discharge											
002	12/13/99		No Discharge											
002	12/14/99		No Discharge											
002	12/15/99		No Discharge											
002	12/16/99		No Discharge											
002	12/17/99		No Discharge											
002	12/18/99		No Discharge											
002	12/19/99		No Discharge											
002	12/20/99		No Discharge											
002	12/21/99		No Discharge											
002	12/22/99		No Discharge											
002	12/23/99		No Discharge											
002	12/24/99		No Discharge											
002	12/25/99		No Discharge											
002	12/26/99		No Discharge											
002	12/27/99		No Discharge											
002	12/28/99		No Discharge											
002	12/29/99		No Discharge											
002	12/30/99		No Discharge											
002	12/31/99		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	12/01/99		1.720			73							
003	12/02/99	7 45	1.280	CA	7.5	73	Grab	12/02/99					
003	12/03/99		1 084			74							
003	12/04/99		1 084										
003	12/05/99		1 586										
003	12/06/99		1 058			72							
003	12/07/99		1.590			68							
003	12/08/99		1.028			66							
003	12/09/99	12 45	1.193	CA	7.4	69	Grab	12/09/99	<0 01	<0 005	<0 005	<0 01	<0 005
003	12/10/99		1.082			69							
003	12/11/99		1.082										
003	12/12/99		0.937										
003	12/13/99		1.269			70							
003	12/14/99	7 23	1.361	CA	7.5	66	Grab	12/14/99					
003	12/15/99		1 460			80							
003	12/16/99		0.525			62							
003	12/17/99		0 935			67							
003	12/18/99		1.103										
003	12/19/99		1.460										
003	12/20/99	7 15	0 453	CA	7 4	64	Grab	12/20/99					
003	12/21/99		0 997			58							
003	12/22/99		0 863			61							
003	12/23/99		0 841			67							
003	12/24/99		0 841			64							
003	12/25/99		1.010										
003	12/26/99		0 790										
003	12/27/99		0 960			62							
003	12/28/99		0.981			72							
003	12/29/99	[illegible]	0.910	RK	7 4	70	Grab	12/29/99					
003	12/30/99		0.880			61							
003	12/31/99		0 905			66							

*001 pH analyzed 12/09 99 ,15 20 *EPA Method 150.1*, TSS analuzed 12/14/99 *EPA Method 160.2*, Metals analyzed 1/26/00 *EPA Method 200.7*

**003 pH analyzed 12/09/99 ,15 20 *EPA Method 150.1*, metals analyzed 1/26/00 *EPA Method 200.7*

*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No: MO-0000281
FILE NUMBER 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD 12/01/99 To 12/31/99

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	(lbs/day)	Copper mg/L	(lbs/day)	Lead mg/L	(lbs/day)	Zinc mg/L	(lbs/day)	TSS (lbs/day)
001	12/01/99		0.309															
001	12/02/99		0.351															
001	12/03/99		0.117															
001	12/04/99		0.282															
001	12/05/99		0.331															
001	12/06/99		0.427															
001	12/07/99		0.359															
001	12/08/99		0.402															
001	12/09/99	12 30	0.513	CA	9.4		Grab	12/09/99	(0 043)	0.005	(0.021)	0 012	(0.051)	0 020	(0 086)	0 005	(0 021)	18 0
001	12/10/99		0.555															
001	12/11/99		0.913															
001	12/12/99		0.564															
001	12/13/99		0.508															
001	12/14/99		0.410															
001	12/15/99		0.520															
001	12/16/99		0.479															
001	12/17/99		0.314															
001	12/18/99		0.372															
001	12/19/99		0.487															
001	12/20/99		0.360															
001	12/21/99		0.310															
001	12/22/99		0.419															
001	12/23/99		0.227															
001	12/24/99		0.660															
001	12/25/99		0.495															
001	12/26/99		0.496															
001	12/27/99		0.429															
001	12/28/99		0.387															
001	12/29/99		0.359															
001	12/30/99		0.282															
001	12/31/99		0.308															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	12/01/99		No Discharge											
002	12/02/99		No Discharge											
002	12/03/99		No Discharge											
002	12/04/99		No Discharge											
002	12/05/99		No Discharge											
002	12/06/99		No Discharge											
002	12/07/99		No Discharge											
002	12/08/99		No Discharge											
002	12/09/99		No Discharge											
002	12/10/99		No Discharge											
002	12/11/99		No Discharge											
002	12/12/99		No Discharge											
002	12/13/99		No Discharge											
002	12/14/99		No Discharge											
002	12/15/99		No Discharge											
002	12/16/99		No Discharge											
002	12/17/99		No Discharge											
002	12/18/99		No Discharge											
002	12/19/99		No Discharge											
002	12/20/99		No Discharge											
002	12/21/99		No Discharge											
002	12/22/99		No Discharge											
002	12/23/99		No Discharge											
002	12/24/99		No Discharge											
002	12/25/99		No Discharge											
002	12/26/99		No Discharge											
002	12/27/99		No Discharge											
002	12/28/99		No Discharge											
002	12/29/99		No Discharge											
002	12/30/99		No Discharge											
002	12/31/99		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	12/01/99		1.720			73							
003	12/02/99	7 45	1.280	CA	7.5	73	Grab	12/02/99					
003	12/03/99		1.084			74							
003	12/04/99		1.084										
003	12/05/99		1.586										
003	12/06/99		1.058			72							
003	12/07/99		1.590			68							
003	12/08/99		1.028			66							
003	12/09/99	12 45	1.193	CA	7.4	69	Grab	12/09/99	<0 01	<0 005	<0 005	<0 01	<0 005
003	12/10/99		1.082			69							
003	12/11/99		1.082										
003	12/12/99		0.937										
003	12/13/99		1.269			70							
003	12/14/99	7 23	1.361	CA	7.5	66	Grab	12/14/99					
003	12/15/99		1.460			60							
003	12/16/99		0.525			62							
003	12/17/99		0.935			67							
003	12/18/99		1.103										
003	12/19/99		1.460										
003	12/20/99	7 15	0.453	CA	7 4	64	Grab	12/20/99					
003	12/21/99		0.997			58							
003	12/22/99		0.863			61							
003	12/23/99		0.641			67							
003	12/24/99		0.641			64							
003	12/25/99		1.010										
003	12/26/99		0.790										
003	12/27/99		0.960			62							
003	12/28/99		0.981			72							
003	12/29/99	[illegible]	0.910	RK	7 4	70	Grab	12/29/99					
003	12/30/99		0.880			61							
003	12/31/99		0.905			66							

*001 pH analyzed 12/09/99 (15:20) *EPA Method 150.1*, TSS analized 12/14/99 *EPA Method 160.2*, Metals analyzed 1/28/00 *EPA Method 200.7*
**003 pH analyzed 12/09/99 (15:20) *EPA Method 150.1*, metals analyzed 1/28/00 *EPA Method 200.7*
*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER The Doe Run Company
St Louis, Missouri Permit No MO-0000281
FILE NUMBER 3.500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 11/01/99 To 11/30/99

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	11/01/99		0.418															
001	11/02/99		0.365															
001	11/03/99		0.420															
001	11/04/99		0.249															
001	11/05/99		0.351															
001	11/06/99		0.462															
001	11/07/99		0.416															
001	11/08/99		0.423															
001	11/09/99		0.397															
001	11/10/99		0.411															
001	11/11/99		0.302															
001	11/12/99		0.290															
001	11/13/99		0.373															
001	11/14/99		0.385															
001	11/15/99		0.359															
001	11/16/99	10:50	0.411	CA	8.9		Grab	11/16/99	(0.066)	0.014	(0.046)	0.024	(0.080)	0.040	(0.133)	0.079	(0.262)	13.9
001	11/17/99		0.369															
001	11/18/99		0.427															
001	11/19/99		0.358															
001	11/20/99		0.355															
001	11/21/99		0.382															
001	11/22/99		0.375															
001	11/23/99		0.212															
001	11/24/99		0.274															
001	11/25/99		0.407															
001	11/26/99		0.416															
001	11/27/99		0.430															
001	11/28/99		0.372															
001	11/29/99		0.280															
001	11/30/99		0.388															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	11/01/99		No Discharge											
002	11/02/99		No Discharge											
002	11/03/99		No Discharge											
002	11/04/99		No Discharge											
002	11/05/99		No Discharge											
002	11/06/99		No Discharge											
002	11/07/99		No Discharge											
002	11/08/99		No Discharge											
002	11/09/99		No Discharge											
002	11/10/99		No Discharge											
002	11/11/99		No Discharge											
002	11/12/99		No Discharge											
002	11/13/99		No Discharge											
002	11/14/99		No Discharge											
002	11/15/99		No Discharge											
002	11/16/99		No Discharge											
002	11/17/99		No Discharge											
002	11/18/99		No Discharge											
002	11/19/99		No Discharge											
002	11/20/99		No Discharge											
002	11/21/99		No Discharge											
002	11/22/99		No Discharge											
002	11/23/99		No Discharge											
002	11/24/99		No Discharge											
002	11/25/99		No Discharge											
002	11/26/99		No Discharge											
002	11/27/99		No Discharge											
002	11/28/99		No Discharge											
002	11/29/99		No Discharge											
002	11/30/99		No Discharge											

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	11/01/99		1.579			84							
003	11/02/99		1.586			78							
003	11/03/99		1.084			68							
003	11/04/99	08:00	1.084	CA	7.6	75	Grab	11/04/99					
003	11/05/99		1.523			68							
003	11/06/99		1.542										
003	11/07/99		1.577										
003	11/08/99		1.899			75							
003	11/09/99		1.218			80							
003	11/10/99		1.082			76							
003	11/11/99	08:28	1.082	CA	7.3	75	Grab	11/11/99					
003	11/12/99		1.422			76							
003	11/13/99		1.654										
003	11/14/99		1.317										
003	11/15/99		1.135			70							
003	11/16/99	11:30	0.525	CA	7.4	70	Grab	11/16/99	0.030	<0.005	0.008	<0.01	0.028
003	11/17/99		1.451			72							
003	11/18/99		1.494			77							
003	11/19/99		1.727			72							
003	11/20/99		1.759										
003	11/21/99		0.997										
003	11/22/99		0.955			76							
003	11/23/99		0.841			78							
003	11/24/99	09:10	0.841	RK	7.3	74	Grab	11/24/99					
003	11/25/99		1.533			73							
003	11/26/99		1.353			74							
003	11/27/99		1.458										
003	11/28/99		2.157										
003	11/29/99		0.775			70							
003	11/30/99		1.439			70							

*001 pH analyzed 11/16/99 (12:30). TSS analized 11/16/99, metals analyzed 12/16/99
**003 pH analyzed 11/16/99 metals analyzed 12/16/99
*** All metals reported as total recoverable

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
NPDES MONITORING REPORT FOR NON-MUNICIPAL WASTEWATER DISCHARGES
OWNER. *The Doe Run Company*
St Louis, Missouri Permit No. MO-0000281
FILE NUMBER. 3 500 JEFFERSON, POINTS 001, 002, AND 003
FACILITY NAME: LEAD SMELTING DIVISION, HERCULANEUM, MISSOURI 63048
REPORT COVERING PERIOD: 10/01/99 To 10/30/99

THE DOE RUN COMPANY

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium mg/L	Cadmium (lbs/day)	Copper mg/L	Copper (lbs/day)	Lead mg/L	Lead (lbs/day)	Zinc mg/L	Zinc (lbs/day)	TSS (lbs/day)
001	10/01/99		0 467															
001	10/02/99		0 511															
001	10/03/99		0 458															
001	10/04/99		0 500															
001	10/05/99		0 299															
001	10/06/99		0 313															
001	10/07/99		0 280															
001	10/08/99		0 459															
001	10/09/99		0 550															
001	10/10/99		0.532															
001	10/11/99		0.451															
001	10/12/99		0 498															
001	10/13/99		0.502															
001	10/14/99	11.20	0.426	RK	9.1		Grab	11/10/99	(0.046)	0.009	(0.041)	0.026	(0.118)	0.020	(0.092)	0 04	(0.184)	20.2
001	10/15/99		0.295															
001	10/16/99		0 386															
001	10/17/99		0 373															
001	10/18/99		0 419															
001	10/19/99		0 370															
001	10/20/99		0 377															
001	10/21/99		0 401															
001	10/22/99		0.334															
001	10/23/99		0.344															
001	10/24/99		0 394															
001	10/25/99		0.359															
001	10/26/99		0 368															
001	10/27/99		0 333															
001	10/28/99		0.256															
001	10/29/99		0.305															
001	10/30/99		0.367															
001	10/31/99		0 406															

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic (lbs/day)	Cadmium (lbs/day)	Copper (lbs/day)	Lead (lbs/day)	Zinc (lbs/day)	TSS (lbs/day)
002	10/01/99		No Discharge											
002	10/02/99		No Discharge											
002	10/03/99		No Discharge											
002	10/04/99		No Discharge											
002	10/05/99		No Discharge											
002	10/06/99		No Discharge											
002	10/07/99		No Discharge											
002	10/08/99		No Discharge											
002	10/09/99		No Discharge											
002	10/10/99		No Discharge											
002	10/11/99		No Discharge											
002	10/12/99		No Discharge											
002	10/13/99		No Discharge											
002	10/14/99		No Discharge											
002	10/15/99		No Discharge											
002	10/16/99		No Discharge											
002	10/17/99		No Discharge											
002	10/18/99		No Discharge											
002	10/19/99		No Discharge											
002	10/20/99		No Discharge											
002	10/21/99		No Discharge											
002	10/22/99		No Discharge											
002	10/23/99		No Discharge											
002	10/24/99		No Discharge											
002	10/25/99		No Discharge											
002	10/26/99		No Discharge											
002	10/27/99		No Discharge											
002	10/28/99		No Discharge											
002	10/29/99		No Discharge											
002	10/30/99		No Discharge											
002	10/31/99													

Outfall Number	Sampling Date	Time of Day	Flow (MGD)	Sampled By	pH	Temp	Sample Type	Date of Analysis	Arsenic mg/L	Cadmium mg/L	Copper mg/L	Lead mg/L	Zinc mg/L
003	10/01/99		1.940			68							
003	10/02/99		1 091			75							
003	10/03/99		1 084										
003	10/04/99		1 084										
003	10/05/99		2 287			77							
003	10/06/99	09 30	1 625	CA	7 3	79	Grab	10/06/99					
003	10/07/99		1 502			76							
003	10/08/99		1.486			79							
003	10/09/99		1 642			87							
003	10/10/99		1 082										
003	10/11/99		1.082										
003	10/12/99		1.563			88							
003	10/13/99		1.994			86							
003	10/14/99	11 50	1.697	RK	7.3	74	Grab	10/14/99	<0.01	<0.005	0.018	<0 01	<0.005
003	10/15/99		1.781			82							
003	10/16/99		0.525			75							
003	10/17/99		1.526										
003	10/18/99		1.628										
003	10/19/99		1.664			81							
003	10/20/99		2 356			79							
003	10/21/99	10 23	0 997	CA	7 3	83	Grab	10/21/99					
003	10/22/99		1.721			80							
003	10/23/99		0 641			80							
003	10/24.99		0 641										
003	10/25/99		1.582										
003	10/26/99		1 602			78							
003	10/27/99	6 20	1.006	CA	7 4	77	Grab	10/27/99					
003	10/28/99		1.599			83							
003	10/29/99		1 465			84							
003	10/30/99		1.979			85							
003	10/31/99		1.398			76							

*001 pH analyzed 10/14/99 (12.00), TSS analized 10/15/99, metals analyzed 11/10/99
**003 pH analyzed 10/14/99, metals analyzed 11/10/99
*** All metals reported as total recoverable

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Road
Lexington, KY 40503-2921
Phone: 606-276-3506
Toll Free: 800-489-3506
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Email: info@envirodatagroup.com
www.envirodatagroup.com

(859)
Area Code

January 7, 2000

Mr. James Lanzafame
The Doe Run Company
881 Main Street
Herculaneum, MO 63048

RE: Biomonitoring Results / Bio. Log No.: 1082 - 1083

Dear Mr. Lamzafame:

Enclosed are the results of your recent biomonitoring tests. A summary of the findings is presented below.

Test Type	**Acute Definitive**	
Test Concentrations	**10%**	
Sample Collection Date / Time	**12/15/99/08:00 a.m.**	
Test Organism	***Ceriodaphnia dubia***	***Pimephales promelas***
Mortality in the dilution water control	**0%**	**2%**
Mortality in effluent tested at the acceptable effluent concentration (AEC, 10%)	**0%**	**0%**
Is mortality in the effluent, tested at the AEC significantly different from that of the dilution water control?	**No**	**No**
Result	**Pass**	

According to the facility's permit, in order to pass the effluent limit, mortality at the AEC must not be significantly different than that of the dilution control (using an alpha level of 0.05). As seen in the table above, this condition was met with both species during testing of the December 15th sample. Therefore, no toxicity was indicated.

A cumulative summary of your biomonitoring results is presented in Table I. If you have any questions or comments concerning the enclosed report, please feel free to contact me.

Sincerely,

Paul W. Patterson
Aquatic Toxicologist

COPY

Enclosures
Tst/04doerun.doc

pc: Mr. Bruce Cox, Parsons Engineering Science

EnviroData Group
Accredited Lab Data for Today's Environment

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TABLE I

SUMMARY OF ACUTE TOXICITY TESTS THE DOE RUN COMPANY

Test Initiation Date	Log Number	*Ceriodaphnia dubia* 48-Hour LC_{50}	*Pimephales promelas* 48-Hour LC_{50}	Result
08/26/96	7041, 7041	> 40%	> 40%	Pass
09/26/98	7312,7313	> 40%	> 40%	Pass
12/30/98	7628,7629	> 40%	> 40%	Pass
12/16/99	1082,1083	> 10%	> 10%	Pass

TOXICITY TEST REPORT
THE DOE RUN COMPANY
BIO. LOG NO.: 1082 - 1083

1. INTRODUCTION

NPDES PERMIT NUMBER: MO-0000281

TOXICITY TEST REQUIRED: Acute Static Definitive Toxicity Test

PLANT LOCATION: 881 Main Street
Herculaneum, MO 63048

RECEIVING STREAM: Mississippi River

TEST PERFORMED BY: EnviroData Group, LLC
2520 Regency Road
Lexington, KY 40503-2921
(606) 276-3506

2. PLANT OPERATIONS

PLANT TYPE: Lead smelting facility

OPERATING SCHEDULE: Continuous

DESCRIPTION OF WASTE TREATMENT: Chemical precipitation, flocculation, clarification, sand filtration

3. SOURCE OF EFFLUENT AND DILUTION WATER

EFFLUENT:

SAMPLING POINT: Final Effluent

COLLECTION DATE AND TIME: 12/14/99/09:00 a.m. - 12/15/99/08:00 a.m.

SAMPLE COLLECTION METHOD: Composite

SAMPLE TEMPERATURE WHEN RECEIVED: 4.0°C

PHYSICAL AND CHEMICAL CHARACTERISTICS: See attached data sheets in the Appendix

3. SOURCE OF EFFLUENT AND DILUTION WATER (Continued)

DILUTION WATER:

SOURCE: Mississippi River

COLLECTION DATE AND TIME: 12/15/98/07:30 a.m.

SAMPLE COLLECTION METHOD: Grab

SAMPLE TEMPERATURE WHEN RECEIVED: 4.0°C

PRETREATMENT: None

PHYSICAL AND CHEMICAL CHARACTERISTICS: See data sheets in the Appendix

LABORATORY CONTROL WATER:

SOURCE: Tap water

PRETREATMENT: Deionization and reconstitution using appropriate salts

PHYSICAL AND CHEMICAL CHARACTERISTICS: See data sheets in the Appendix

4. TEST CONDITIONS

The acute tests were performed according to *"Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,"* EPA/600/4-90/027F.

DATE AND TIME TEST STARTED: See data sheets in the Appendix

DATE AND TIME TEST ENDED: See data sheets in the Appendix

ACCLIMATION TEMPERATURE: 25 ± 1°C

OTHER INFORMATION REGARDING TEST CONDITIONS IS LISTED IN TABLE 1.

TOXICITY TEST REPORT (continued)
THE DOE RUN COMPANY
BIO. LOG NO.: 1082 - 1083

5. TEST ORGANISMS

Scientific Name:	*Ceriodaphnia dubia*	*Pimephales promelas*
Age:	< 24 Hours	12 Days
Life Stage:	Neonate	Juvenile
Source:	In-house Culture	In-house Culture

6. QUALITY ASSURANCE

Organism:	*Ceriodaphnia dubia*	*Pimephales promelas*
Reference Toxicant:	NaCl	NaCl
Test Date/Time:	12/01/99/11:00 a.m.	12/01/99/11:30 a.m.
Test Duration:	48 hours	48 hours
Dilution Water:	Reconstituted Water	Reconstituted Water
Result:	LC_{50} = 2824 mg/L	LC_{50} = 6755 mg/L

Methods/Instrumentation used in Chemical Analysis:

Dissolved Oxygen, pH, Conductivity: Electrochemistry Analyzer/Jenway Model No. 3410
Alkalinity: Standard Methods (APHA 1992, 18th Ed) Titration Method 2320B or EPA Colorimetric Method 310.1 Using a Lachat Autoanalyzer
Hardness: Standard Methods (APHA 1992, 18th Ed) EDTA Titrimetric Method 2340C or EPA Colorimetric Method 130.1 Using a Lachat Autoanalyzer
Chlorine: Standard Methods (APHA 1992, 18th Ed) DPD Ferrous Titrimetric Method 4500-Cl F.

7. RESULTS

RAW DATA: Bench sheets are included in the Appendix.

DATA SUMMARY: See Table 2.

TABLE 1

SUMMARY OF ACUTE TOXICITY TEST CONDITIONS
METHOD: EPA 600/4-90/027F

		Ceriodaphnia dubia	*Pimephales promelas*
1.	Test Type:	Static	Static
2.	Temperature, Mean (Range):	25.1 (24.7-25.7)°C	25.0 (24.1-25.7)°C
3.	Light Quality:	Ambient laboratory illumination (cool white)	Ambient laboratory illumination (cool white)
4.	Light Intensity:	Approx. 100 ft-c	Approx. 100 ft-c
5.	Photoperiod:	8 hrs. dark, 16 hrs. light	8 hrs. dark, 16 hrs. light
6.	Test Chamber Size and Type:	30 ml polystyrene	270 ml polystyrene
7.	Test Solution Volume:	15 ml/replicate	200 ml/replicate
8.	Renewal of Test Concentrations:	None	None
9.	Age of Test Organism:	Less than 24 hours	12 days
10.	No. of Test Organisms per Chamber:	5	10
11.	No. of Replicate Chambers per Concentration:	4	2
12.	Feeding Regime:	Not fed	Not fed
13.	Aeration:	None	None
14.	Dilution Water:	River Water	River Water
15.	Effluent Concentrations:	10%	10%
16.	Test Duration:	48 hours	48 hours
17.	Effects Measured:	Death and immobility	Death and immobility
18.	Test Acceptability:	90% or greater survival in the control group	90% or greater survival in the control group

TABLE 2

SUMMARY OF ACUTE TOXICITY TESTS
THE DOE RUN COMPANY

Test Organism	Collection Date/Time	Test Concentration (%)	Percent Survival at End of Test	Significantly different than river?	Method
Ceriodaphnia dubia	12/15/99/07:30 a.m.	River Water	100	---	---
	----	Control	100	---	---
	12/15/99/08:00 a.m.	10	100	No	Inspection
Pimephales promelas	12/15/99/07:30 a.m.	River Water	98	---	---
	----	Control	100	---	---
	12/15/99/08:00 a.m.	10	100	No	Inspection

Interpretation of Results:

In order for these screening tests to pass, mortality in the effluent at the acceptable effluent concentration (AEC) must not be significantly different than that of the dilution control.

In both tests, mortality in the effluent was not significantly different than that of the dilution control. Therefore, based on the applicable permit, no toxicity was observed, and the effluent passes.

APPENDIX

ACUTE TOXICITY DATA SHEETS
CHAIN-OF-CUSTODY RECORDS

FRESHWATER ACUTE TOXICITY BENCH SHEET
48-HOUR STATIC NON-RENEWAL
METHOD: EPA 600/4-90/027F

Discharger: DOE RUN
Location: 1082
Bio. Log Number: 1082
Date/Time Initiated: 12/16/99 1100
Date/Time Terminated: 12-18-99 1100

Test Organism: ✓ *Ceriodaphnia dubia* ___ *Pimephales promelas* ___ *Daphnia pulex* ___ *Daphnia magna* Other:
Organism Age: <24hrs Batch No.: 1205
Dilution Water: upstream Batch No.:
Number of Organisms per Replicate at Start: 5

Sample	Replicate ID	Live Organisms at Hour		pH (Standard Units)			Dissolved Oxygen (mg/L)			Conductivity (µmhos/cm)			Temp. (°C)		
		24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	1	5	5	7.7	7.7	7.4	7.8	8.3	7.6	375	353	361	25.7	24.7	25.0
	2	5	5												
	3	5	5												
	4	5	5												
10%	5	5	5	7.7	8.0	7.6	7.9	8.5	7.7	985	987	939	25.7	24.7	25.0
	6	5	5												
	7	5	5												
	8	5	5												
upstream	9	5	5	7.5	8.1	7.8	8.0	8.6	7.9	612	706	1108	25.6	24.7	25.1
	10	5	5												
	11	5	5												
	12	5	5												
Analyst		KH	LS	AL	KH	LS	AL	KH	LS	AL	KH	LS	AL	KH	LS

Sample	Sample Collection Date/Time	As mg/L $CaCO_3$		Ammonia-N (mg/L)	Residual Chlorine (mg/L)	$DeCl_2$?	LC_{50}
		Alkalinity	Hardness				
Control	[illegible]	75	108				
10%	12/15/99 0800	143	378				>100%
upstream	12/15/99 0730	154	215	—			>100%
100%				—	<0.02	N/A	~~>100%~~
Analyst		SH	SH		AL		RP

Comments: Temperature Mean (range) = 25.1 (24.7-25.7) RP

FRESHWATER ACUTE TOXICITY BENCH SHEET
48-HOUR STATIC NON-RENEWAL
METHOD: EPA 600/4-90/027F

Discharger: DOE RUN
Location: ~~1083~~
Bio. Log Number: 1083
Date/Time Initiated: 12/16/99 1100
Date/Time Terminated: 12-18-99 1130

Test Organism: ___ *Ceriodaphnia dubia* ✓ *Pimephales promelas* ___ *Daphnia pulex* ___ *Daphnia magna* Other:
Organism Age: 12 days Batch No.: 1204
Dilution Water: upstream Batch No.: —
Number of Organisms per Replicate at Start: 10

Sample	Replicate ID	Live Organisms at Hour		pH (Standard Units)			Dissolved Oxygen (mg/L)			Conductivity (µmhos/cm)			Temp. (°C)		
		24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	1	10	10	7.7		7.2	7.8		6.1	375		361	25.7		24.1
	2	10	10												
	3	10	10												
	4	10	10												
10%	5	10	10	7.7		7.5	7.9		7.0	985		934	25.7		24.5
	6	10	10												
	7	10	10												
	8	10	10												
upstream	9	10	10	7.5		7.8	8.0		7.1	612		678	25.6		24.3
	10	10	9												
	11	10	10												
	12	10	10		—										
Analyst		SH	LS	M		LS	M		LS	M		LS	BR		LS

Sample	Sample Collection Date/Time	As mg/L $CaCO_3$ Alkalinity	As mg/L $CaCO_3$ Hardness	Ammonia-N (mg/L)	Residual Chlorine (mg/L)	$DeCl_2$?	LC_{50}
Control	233	75	108				
10%	12/15/99 0820	143	378				>10%
upstream	12/15/99 0730	154	215	—			>10%
100%				—	<0.02	N/A	
Analyst		SH	SH		M		RP

Comments: Temperature Mean (range) = 25.0 (24.1-25.7) RP

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BIOMONITORING
CHAIN OF CUSTODY RECORD

Bio Log No.: 1082-1083
Client: The Doe Run Company
Outfall/Station: Receiving Stream

Collected by: Cliff Asberry
Facility Sampled: Herculaneum
NPDES Permit #: MO-0000281

EnviroData Group, LLC
2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

SAMPLE TYPE:

EDG use only: Bio. Notification Time:_____ By:_____

Grab	Collection		Temp (°C) upon Pick up / shipping *Date:*				Temp (°C) upon receipt at EDG *Date:*			Volume Collected	Visual Description
	Date	Time	On site	Rec. by	Client Init.	Time	Laboratory	Rec. by	Time		
1	12-15-99	07:30	9.1	C. Ashe	C.A.	7:57	4°	Jens	0910	1 gal	
2											
3											
4											

Composite	From		To		Temp (°C) upon Pick up / shipping *Date:*				Temp (°C) upon receipt at EDG *Date:*			Volume Collected	Visual Description
	Date	Time	Date	Time	On site	Rec. by	Client Init.	Time	Laboratory	Rec. by	Time		
1													
2													

First Day Rain Event: Yes Amount (in.)____ No Trace Daily Flow (MGD)____ Mississippi R.
Second Day Rain Event: Yes Amount (in.)____ No Trace Daily Flow (MGD)____

COMMENTS:

SAMPLE DELIVERY: UPS (✓) Airborne Express ( ) Fed Ex ( ) Bus ( ) Client ( ) Consultant Field Charge ( ) $_____

SAMPLE RECEIVING (Fill in from top down):

Relinquished by:		Received by:	
Signature: Clifford L. Ashe	Date/Time: 12-15-99 7:58	Signature:	Date/Time:
Signature: [signature]	Date/Time: 12-16-99/0910	Signature: Jessa Sollie	Date/Time: 12/16/99 0910
Signature: Jessa Sollie	Date/Time: 12-16-99/0950	Signature: Diane Higdon	Date/Time: 12-16-99/0950

Virginia Clients - please complete reverse side

BIOMONITORING
CHAIN OF CUSTODY RECORD

Bio Log No.: 1182-1083

Client: THE DOE RUN COMPANY

Outfall/Station: 0001

Collected by: CLIFF ASPERRY

Facility Sampled: DOE RUN COMPANY - HERCULANEUM

NPDES Permit #: MO - 0000281

EnviroData Group, LLC
2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

SAMPLE TYPE:

EDG use only: Bio. Notification Time:_____ By:_____

Grab	Collection		Temp (°C) upon Pick up / shipping *Date:*				Temp (°C) upon receipt at EDG *Date:*			Volume Collected	Visual Description
	Date	Time	On site	Rec. by	Client Init.	Time	Laboratory	Rec. by	Time		
1											
2											
3											
4											

Composite	From		To		Temp (°C) upon Pick up / shipping *Date: 12-15-99*				Temp (°C) upon receipt at EDG *Date:*			Volume Collected	Visual Description
	Date	Time	Date	Time	On site	Rec. by	Client Init.	Time	Laboratory	Rec. by	Time		
1	12/14/99	09:00	12/15/99	03:00	11.3	C. Asbury	CA	7:55	4°C	TMS	0910	1gal	
2													

First Day Rain Event: Yes Amount (in.)_____ (No) Trace Daily Flow (MGD)_____
Second Day Rain Event: Yes Amount (in.)_____ (No) Trace Daily Flow (MGD)_____

COMMENTS:

SAMPLE DELIVERY: UPS (✓) Airborne Express ( ) Fed Ex ( ) Bus ( ) Client ( ) Consultant Field Charge ( ) $_____

SAMPLE RECEIVING (Fill in from top down):

Relinquished by:		Received by:	
Clifford L Asberry	12-15-99 7:58 AM		
Signature	Date/Time	Signature	Date/Time
UPS	12/16/99 0910	Susan Sollee	12/16/99 0910
Signature	Date/Time	Signature	Date/Time
Susan Sollee	12/16/99 0950	Diane Higgins	12-16-99 0950
Signature	Date/Time	Signature	Date/Time

Virginia Clients - please complete reverse side

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Road
Lexington, KY 40503-2921
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
Email: info@envirodatagroup.com
www.envirodatagroup.com

January 8, 2001

Mr. James Lanzafame
The Doe Run Company
881 Main Street
Herculaneum, MO 63048

RE: Biomonitoring Results / Bio. Log No.: 0886 - 0887

Dear Mr. Lanzafame:

Enclosed are the results of your recent biomonitoring tests. A summary of the findings is presented below.

Test Type	Acute Definitive	
Test Concentrations	10%	
Sample Collection Date / Time	12/27/00 8:30 AM	
Test Organism	*Ceriodaphnia dubia*	*Pimephales promelas*
Mortality in the dilution water control	0%	0%
Mortality in effluent tested at the acceptable effluent concentration (AEC, 10%)	0%	0%
Is mortality in the effluent, tested at the AEC significantly different from that of the dilution water control?	No	No
Result	Pass	

According to the facility's permit, in order to pass the effluent limit, mortality at the AEC must not be significantly different than that of the dilution control (using an alpha level of 0.05). As seen in the table above, this condition was met with both species during testing of the December 27th sample. Therefore, no toxicity was indicated.

A cumulative summary of your biomonitoring results is presented in Table I. If you have any questions or comments concerning the enclosed report, please feel free to contact me.

Sincerely,

Lisa Sexton

Lisa Sexton
Project Manager

Enclosures
Doe Run ccc

cc: Mr. Bruce Cox, Parsons Engineering Science

EnviroData Group

Accredited Lab Data for Today's Environment

2520 Regency Road
Lexington, KY 40503-2921
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
Email: info@envirodatagroup.com
www.envirodatagroup.com

TABLE I

SUMMARY OF ACUTE TOXICITY TESTS
THE DOE RUN COMPANY

Test Initiation Date	Log Number	*Ceriodaphnia dubia* 48-Hour LC_{50}	*Pimephales promelas* 48-Hour LC_{50}	Result
08/26/96	7041, 7041	> 40%	> 40%	Pass
09/26/98	7312,7313	> 40%	> 40%	Pass
12/30/98	7628,7629	> 40%	> 40%	Pass
12/16/99	1082,1083	> 10%	> 10%	Pass
12/28/00	0886,0887	> 10%	> 10%	Pass

TOXICITY TEST REPORT
THE DOE RUN COMPANY
BIO. LOG NO.: 0886 - 0887

1. INTRODUCTION

NPDES PERMIT NUMBER: MO-0000281

TOXICITY TEST REQUIRED: Acute Static Definitive Toxicity Test

PLANT LOCATION: 881 Main Street
Herculaneum, MO 63048

RECEIVING STREAM: Mississippi River

TEST PERFORMED BY: EnviroData Group, LLC
2520 Regency Road
Lexington, KY 40503-2921
(859) 276-3506

2. PLANT OPERATIONS

PLANT TYPE: Lead smelting facility

OPERATING SCHEDULE: Continuous

DESCRIPTION OF WASTE TREATMENT: Chemical precipitation, flocculation, clarification, sand filtration

3. SOURCE OF EFFLUENT AND DILUTION WATER

EFFLUENT:

SAMPLING POINT: Final Effluent

COLLECTION DATE AND TIME: 12/26/00 8:30 AM - 12/27/00 8:30 AM

SAMPLE COLLECTION METHOD: Composite

SAMPLE TEMPERATURE WHEN RECEIVED: 1.0°C

PHYSICAL AND CHEMICAL CHARACTERISTICS: See attached data sheets in the Appendix

3. SOURCE OF EFFLUENT AND DILUTION WATER (Continued)

DILUTION WATER:

SOURCE: Mississippi River

COLLECTION DATE AND TIME: 12/27/00 8:50 AM

SAMPLE COLLECTION METHOD: Grab

SAMPLE TEMPERATURE WHEN RECEIVED: 1.0°C

PRETREATMENT: None

PHYSICAL AND CHEMICAL CHARACTERISTICS: See data sheets in the Appendix

LABORATORY CONTROL WATER:

SOURCE: Tap water

PRETREATMENT: Deionization and reconstitution using appropriate salts

PHYSICAL AND CHEMICAL CHARACTERISTICS: See data sheets in the Appendix

4. TEST CONDITIONS

The acute tests were performed according to *"Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,"* EPA/600/4-90/027F.

DATE AND TIME TEST STARTED: See data sheets in the Appendix

DATE AND TIME TEST ENDED: See data sheets in the Appendix

ACCLIMATION TEMPERATURE: 25 ± 1°C

OTHER INFORMATION REGARDING TEST CONDITIONS IS LISTED IN TABLE 1.

TOXICITY TEST REPORT (continued)
THE DOE RUN COMPANY
BIO. LOG NO.: 0886 - 0887

5. TEST ORGANISMS

Scientific Name:	*Ceriodaphnia dubia*	*Pimephales promelas*
Age:	< 24 Hours	10 Days
Life Stage:	Neonate	Juvenile
Source:	In-house Culture	In-house Culture

6. QUALITY ASSURANCE

Organism:	*Ceriodaphnia dubia*	*Pimephales promelas*
Reference Toxicant:	NaCl	NaCl
Test Date/Time:	12/15/00 11:00 AM	12/11/00 3:00 PM
Test Duration:	48 hours	48 hours
Dilution Water:	Reconstituted Water	Reconstituted Water
Result:	LC_{50} = 2041 mg/L	LC_{50} = 9313 mg/L

Methods/Instrumentation used in Chemical Analysis:

Dissolved Oxygen, pH, Conductivity: Electrochemistry Analyzer/Jenway Model No. 3410
Alkalinity: Standard Methods (APHA 1992, 18th Ed) Titration Method 2320B or EPA Colorimetric Method 310.1 Using a Lachat Autoanalyzer
Hardness: Standard Methods (APHA 1992, 18th Ed) EDTA Titrimetric Method 2340C or EPA Colorimetric Method 130.1 Using a Lachat Autoanalyzer
Chlorine: Standard Methods (APHA 1992, 18th Ed) DPD Ferrous Titrimetric Method 4500-Cl F.

7. RESULTS

RAW DATA: Bench sheets are included in the Appendix.

DATA SUMMARY: See Table 2.

TABLE 1

SUMMARY OF ACUTE TOXICITY TEST CONDITIONS
METHOD: EPA 600/4-90/027F

		Ceriodaphnia dubia	*Pimephales promelas*
1.	**Test Type:**	Static	Static
2.	**Temperature, Mean (Range):**	24.8 (24.6-25.3)°C	24.9 (24.7-25.3)°C
3.	**Light Quality:**	Ambient laboratory illumination (cool white)	Ambient laboratory illumination (cool white)
4.	**Light Intensity:**	Approx. 100 ft-c	Approx. 100 ft-c
5.	**Photoperiod:**	8 hrs. dark, 16 hrs. light	8 hrs. dark, 16 hrs. light
6.	**Test Chamber Size and Type:**	30 ml polystyrene	270 ml polystyrene
7.	**Test Solution Volume:**	15 ml/replicate	200 ml/replicate
8.	**Renewal of Test Concentrations:**	None	None
9.	**Age of Test Organism:**	Less than 24 hours	10 days
10.	**No. of Test Organisms per Chamber:**	5	10
11.	**No. of Replicate Chambers per Concentration:**	4	2
12.	**Feeding Regime:**	Not fed	Not fed
13.	**Aeration:**	None	None
14.	**Dilution Water:**	River Water	River Water
15.	**Effluent Concentrations:**	10%	10%
16.	**Test Duration:**	48 hours	48 hours
17.	**Effects Measured:**	Death and immobility	Death and immobility
18.	**Test Acceptability:**	90% or greater survival in the control group	90% or greater survival in the control group

TABLE 2

SUMMARY OF ACUTE TOXICITY TESTS
THE DOE RUN COMPANY

Test Organism	Collection Date/Time	Test Concentration (%)	Percent Survival at End of Test	Significantly different than river?	Method
Ceriodaphnia dubia	12/27/00 8:50 AM	River Water	100	—	—
	—	Control	100	—	—
	12/27/00 8:30 AM	10	100	No	Inspection
Pimephales promelas	12/27/00 8:50 AM	River Water	100	—	—
	—	Control	100	—	—
	12/27/00 8:30 AM	10	100	No	Inspection

Interpretation of Results:

In order for these screening tests to pass, mortality in the effluent at the acceptable effluent concentration (AEC) must not be significantly different than that of the dilution control.

In both tests, mortality in the effluent was not significantly different than that of the dilution control. Therefore, based on the applicable permit, no toxicity was observed, and the effluent **passes**.

APPENDIX

ACUTE TOXICITY DATA SHEETS
CHAIN-OF-CUSTODY RECORDS

FRESHWATER ACUTE TOXICITY BENCH SHEET
48-HOUR STATIC NON-RENEWAL
METHOD: EPA 600/4-90/027F

EnviroData Group

2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Discharger: The Doe Run Company
Location:
Bio. Log Number: 0886
Date/Time Initiated: 12-28-00 1415 By: DH
Date/Time Terminated: 12-30-00 1210 By: AB

Test Organism: ✓ *Ceriodaphnia dubia* ___ *Pimephales promelas* ___ *Daphnia magna* Other:
Organism Age: <24 hrs Batch No.: 1218
Dilution Water: 9:1 RW Batch No.: 489

Sample (% Eff.)	Replicate ID	Live Organisms At Hour			pH (Standard Units)			Dissolved Oxygen (mg/L)			Conductivity (µmhos/cm)			Temp. (°C)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	1	5	5	5	7.7		7.7	7.8		7.8	351	~~352~~	352	25.0	24.6	24.6
	2	5	5	5												
	3	5	5	5												
	4	5	5	5												
upstream	5	5	5	5	7.6		7.9	8.0		7.9	957	~~696~~	696	25.3	24.6	24.6
	6	5	5	5												
	7	5	5	5												
	8	5	5	5												
10% w/ upstream	9	5	5	5	7.6		8.0	8.0		8.0	1022	~~807~~	807	25.3	24.6	24.6
	10	5	5	5												
	11	5	5	5												
	12	5	5	5												
Analyst		DH	DH	AB	DH		AB	DH		AB	DH		AB	DH	DH	AB

Sample	Sample Collection Date/Time	As mg/L $CaCO_3$ Alkalinity	As mg/L $CaCO_3$ Hardness	Ammonia-N (mg/L)	Residual Chlorine (mg/L)	$DeCl_2$?	LC_{50}
Control	10-489	84	122				
upstream	12/27/00 0850	204	286		<0.02	NA	>10%
10% w/ up		188	330				
100% eff	12/27/00 0830				<0.02	NA	>10%
Analyst		AB	CF		DH	LS	LS

Comments:

Reviewed By: LS

FRESHWATER ACUTE TOXICITY BENCH SHEET
48-HOUR STATIC NON-RENEWAL
METHOD: EPA 600/4-90/027F

EnviroData Group
2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

Discharger: The Doe Run Company
Location:
Bio. Log Number: 0887
Date/Time Initiated: 12-28-00 1425 By: DH
Date/Time Terminated: 12-30-00 1200 By: AB

Test Organism: ___ *Ceriodaphnia dubia* ✓ *Pimephales promelas*
___ *Daphnia magna* Other:
Organism Age: 10 days Batch No.: 1218
Dilution Water: 9:1 RW Batch No.: 489

Sample (% Eff.)	Replicate ID	Live Organisms At Hour			pH (Standard Units)			Dissolved Oxygen (mg/L)			Conductivity (µmhos/cm)			Temp. (°C)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	1	10	10	10	7.7		7.5	7.8	~~7.5~~	7.5	351	~~353~~	353	25.0	24.7	24.8
	2	10	10	10												
	3	10	10	10												
	4	10	10	10												
upstream	5	10	10	10	7.6		7.9	8.0	~~7.6~~	7.6	957	~~733~~	733	25.3	24.7	24.8
	6	10	10	10												
	7	10	10	10												
	8	10	10	10												
10% w/ upstream	9	10	10	10	7.6		7.9	8.0	~~7.7~~	7.7	1022	~~852~~	852	25.3	24.7	24.8
	10	10	10	10												
	11	10	10	10												
	12	10	10	10												
Analyst		DH	DH	AB	DH		AB	DH		AB	DH		AB	DH	DH	AB

Sample	Sample Collection Date/Time	As mg/L $CaCO_3$ Alkalinity	As mg/L $CaCO_3$ Hardness	Ammonia-N (mg/L)	Residual Chlorine (mg/L)	$DeCl_2$?	LC_{50}
Control	B-489	84	122				
Upstream	12/27/00 0850	204	286		<0.02	NA	>10%
10% w/ up.		188	330				
100% eff.	12/27/00 0830				<0.02	NA	>10%
Analyst		AB	CF		DH	LS	LS

Comments:

Reviewed By: LS

BIOMONITORING
CHAIN OF CUSTODY RECORD

Bio Log No.: 0886-0887

Client: The DOE RUN Company

Outfall/Station: 001

Collected by: Cole R. Kelley

Facility Sampled: HERCULANEUM

NPDES Permit #: MO-0000281

EnviroData Group, LLC
2520 Regency Road
Lexington, Kentucky 40503-2921
(606) 276-3506

SAMPLE TYPE:

EDG use only: Bio. Notification Time:_____ By:_____

Grab	Collection		Temp (°C) upon Pick up / shipping *Date: 12-27-00*				Temp (°C) upon receipt at EDG *Date:*			Volume Collected	Visual Description
	Date	Time	On site	Rec. by	Client Init.	Time	Laboratory	Rec. by	Time		
1	12-27-00	08:50	35°		CRK		1°	MCH	0900	1 gal	clear
2											
3											
4											

Composite	From		To		Temp (°C) upon Pick up / shipping *Date:*				Temp (°C) upon receipt at EDG *Date:*			Volume Collected	Visual Description
	Date	Time	Date	Time	On site	Rec. by	Client Init.	Time	Laboratory	Rec. by	Time		
1	12-26-00	08:30	12/27/00	08:30	36°		CRK		1°	MCH	0900	1 GAL	clear
2													

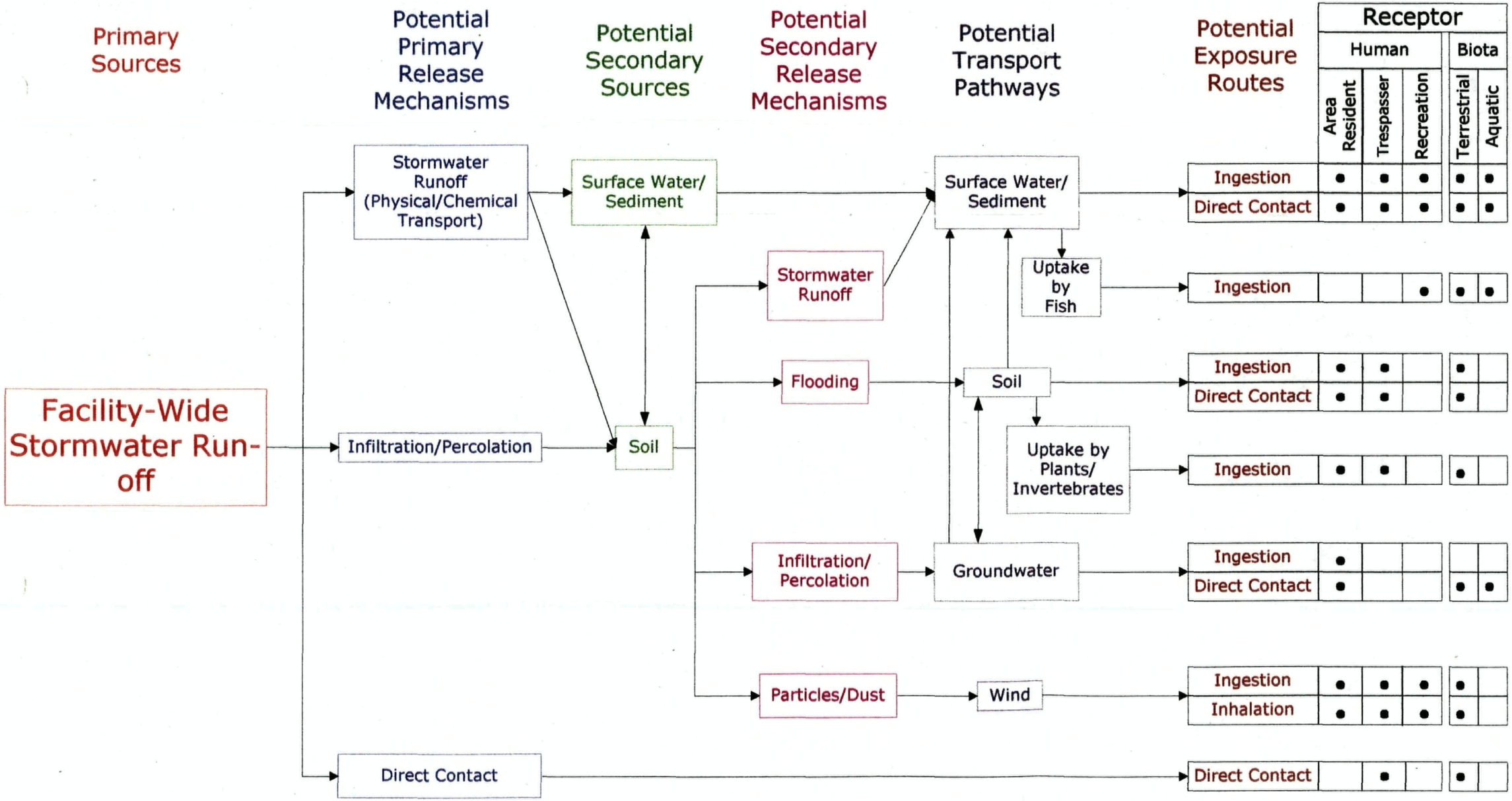
First Day Rain Event: Yes Amount (in.)_____ No Trace Daily Flow (MGD)_____
Second Day Rain Event: Yes Amount (in.)_____ No Trace Daily Flow (MGD)_____

COMMENTS:

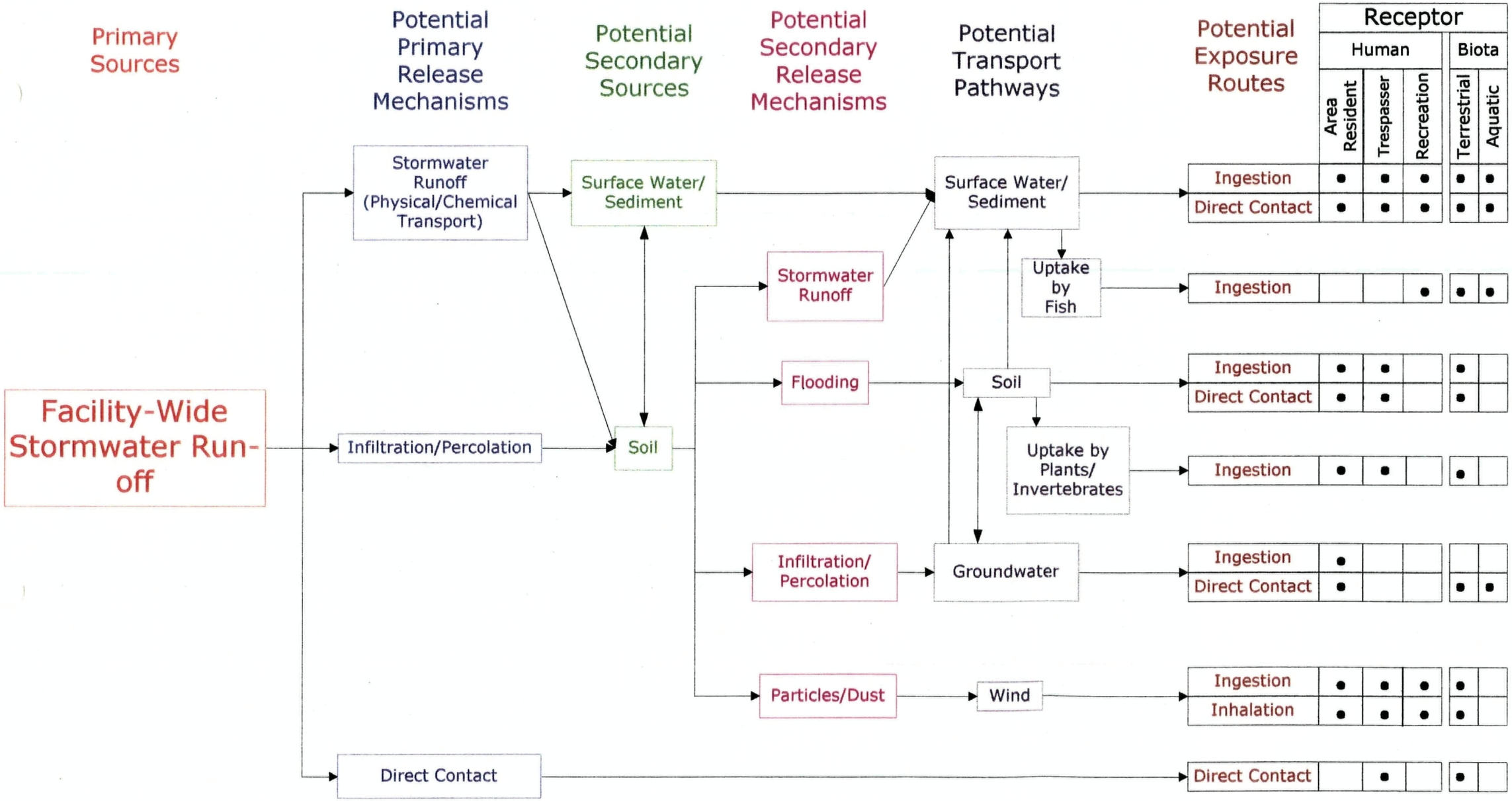
SAMPLE DELIVERY: UPS (X) Airborne Express ( ) Fed Ex ( ) Bus ( ) Client ( ) Consultant Field Charge ( ) $_____

SAMPLE RECEIVING (Fill in from top down):

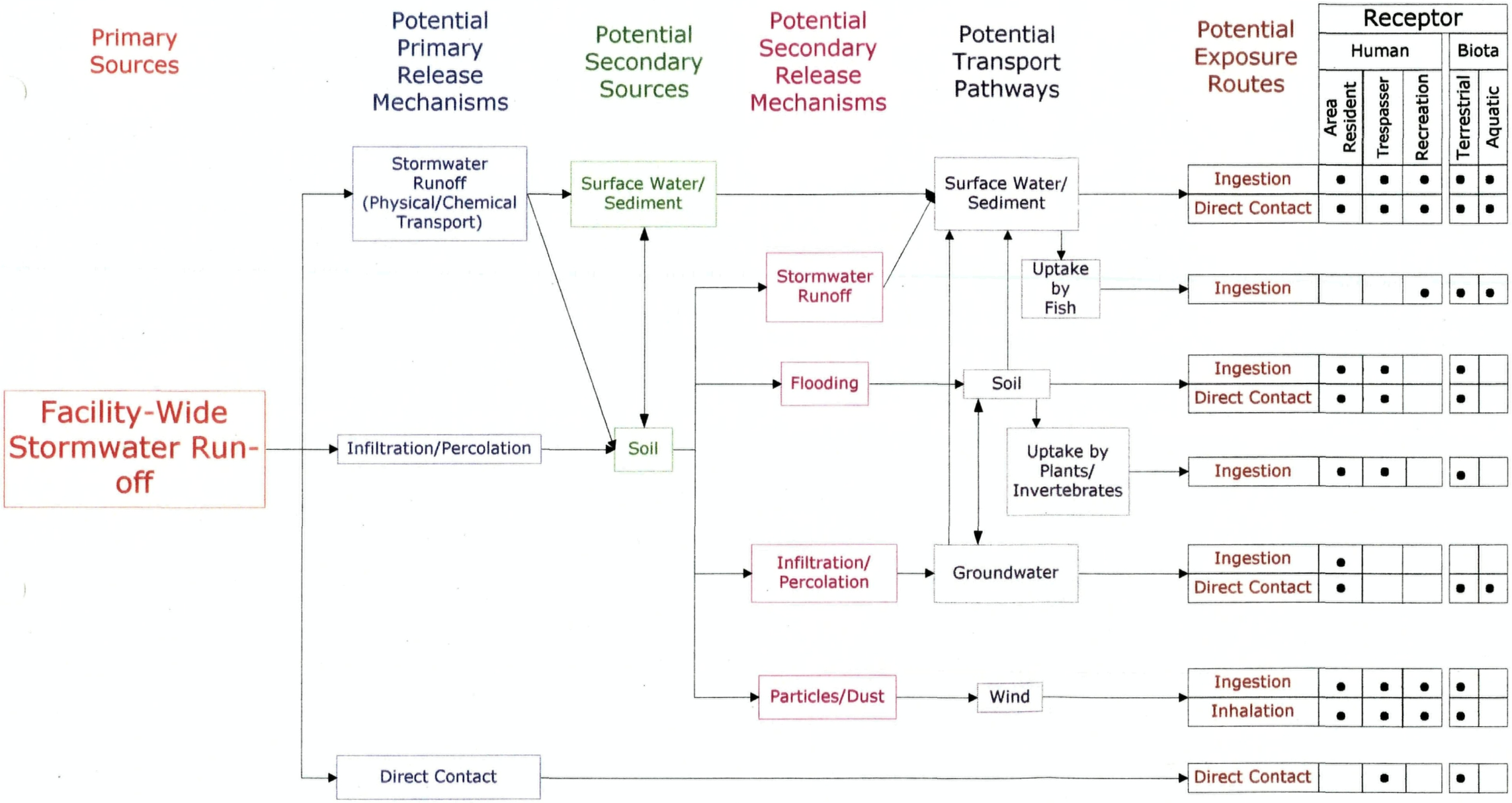
Relinquished by:	Date/Time	Received by:	Date/Time
Cole R. Kelley (Signature)	12-27-00 08:40		
UPS (Signature)	12-28-00/0900	M. Harper (Signature)	12-28-00/0900
M. Harper (Signature)	12-28-00/0925	Diane Hunter (Signature)	12-28-00/0925



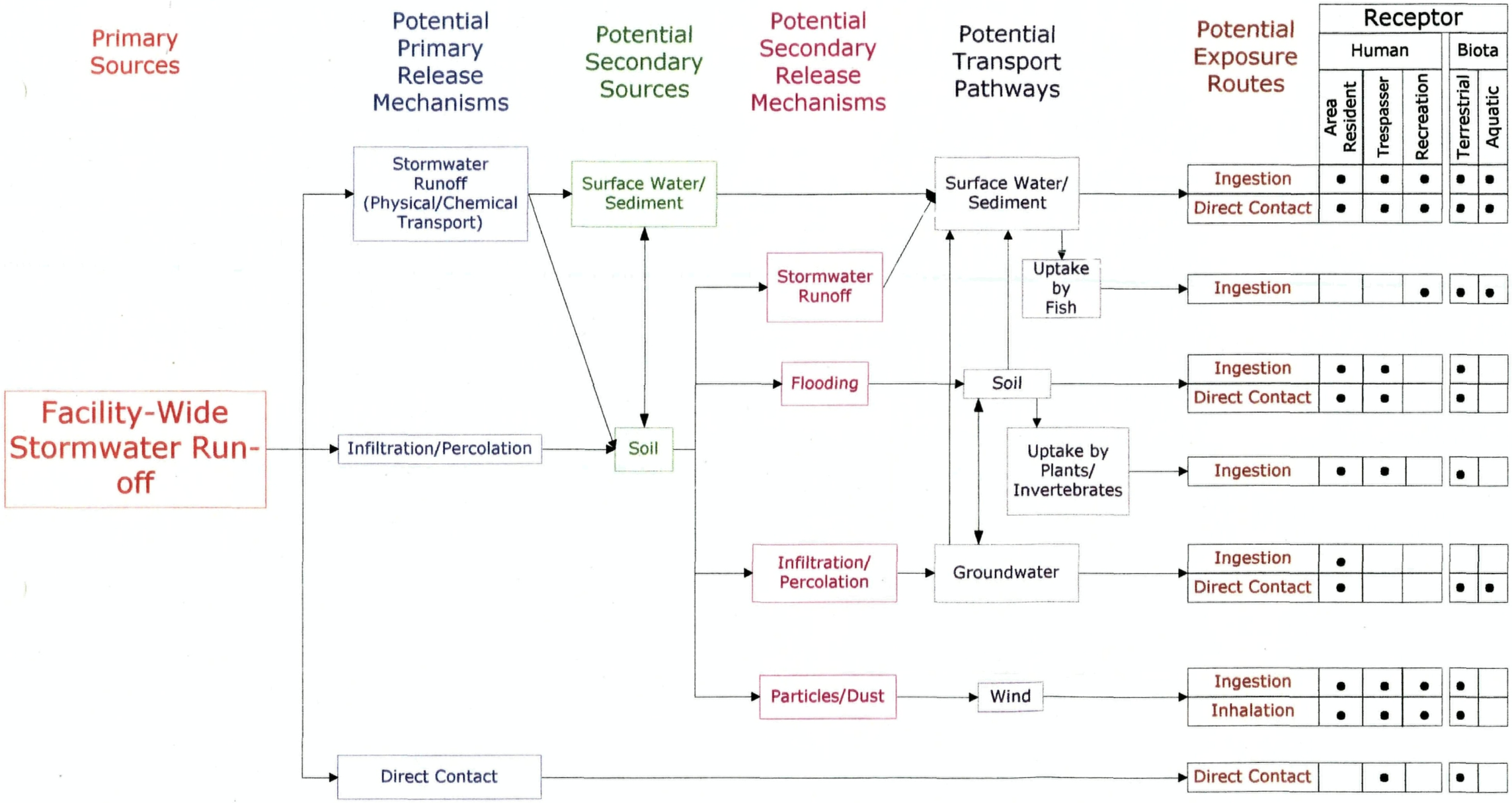
Preliminary Conceptual Site Model (DRAFT)
Facility-Wide Stormwater Run-off
The Doe Run Company Lead Smelter-Herculaneum, Missouri



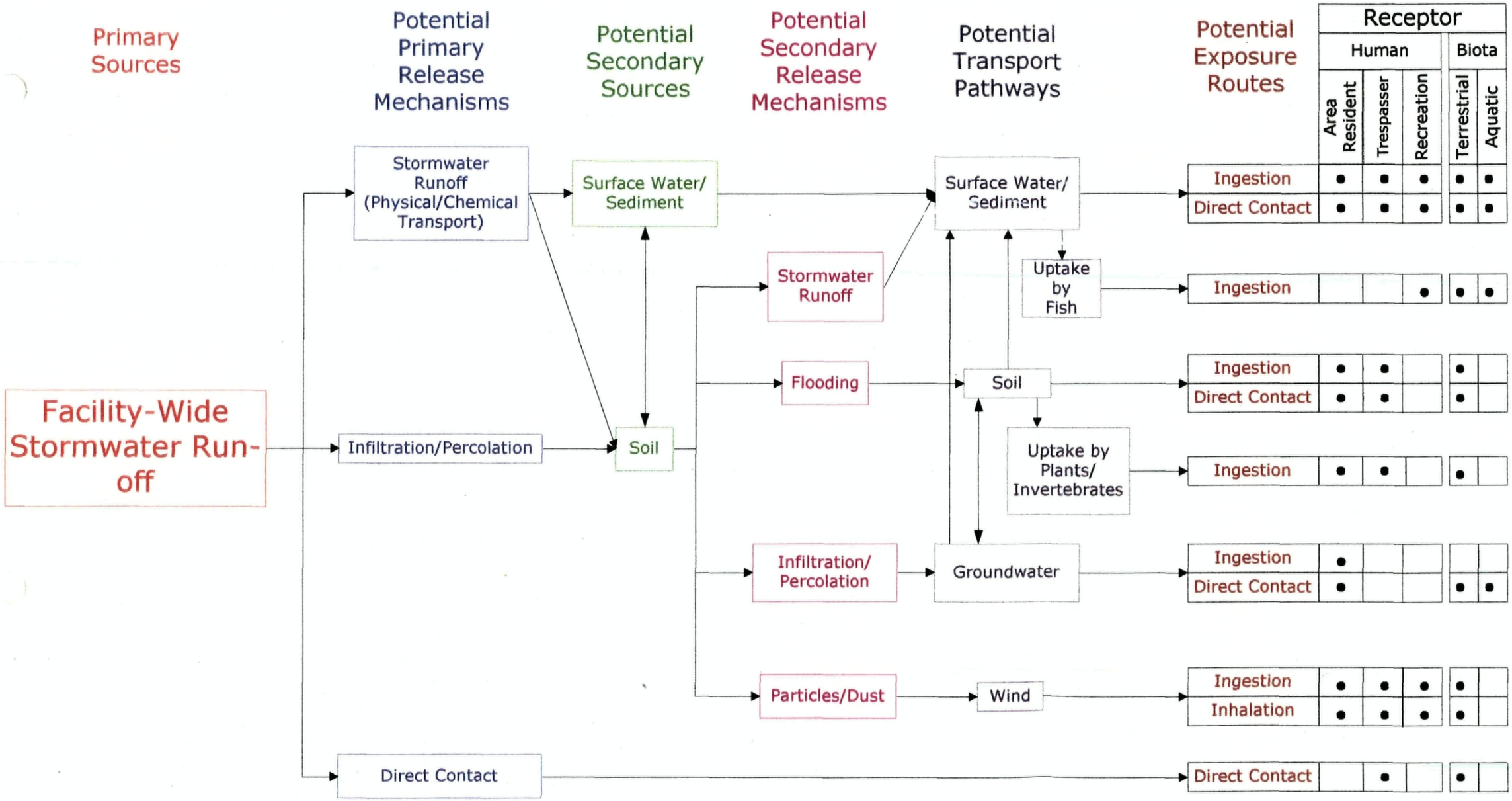
Preliminary Conceptual Site Model (DRAFT)
Facility-Wide Stormwater Run-off
The Doe Run Company Lead Smelter-Herculaneum, Missouri



Preliminary Conceptual Site Model (DRAFT)
Facility-Wide Stormwater Run-off
The Doe Run Company Lead Smelter-Herculaneum, Missouri



Preliminary Conceptual Site Model (DRAFT)
Facility-Wide Stormwater Run-off
The Doe Run Company Lead Smelter-Herculaneum, Missouri



Preliminary Conceptual Site Model (DRAFT)
Facility-Wide Stormwater Run-off
The Doe Run Company Lead Smelter-Herculaneum, Missouri

THE
DOE RUN
COMPANY
SMELTING DIVISION

Aaron Miller
Primary Smelting Environmental Manager

May 28, 2002

Mr. Tony Petruska
USEPA, Region VII
901 N 5th Street
Kansas City, KS 66101

Mr. Dave Mosby
MDNR, Superfund Section
P. O. Box 176
Jefferson City, Missouri 65102

Re: Draft Other Areas Evaluation Sampling Plan

Dear Sirs,

Enclosed you will find the above Plan as required by the AOC. As part of our Materials Transportation and Handling Plan we are planning to eliminate the storage of copper dross east of the rail tracks. We hope to accomplish the elimination of any outside storage in the very near future, in which case sampling for the area would be mute.

Should you have any questions, please feel free to contact me at 636-933-3180 or amiller@doerun.com.

Sincerely,

Aaron Miller

Sincerely,

881 MAIN ST. HERCULANEUM, MO 63048
TELEPHONE: 636-479-5311

FIELD SAMPLING PLAN
OTHER AREAS EVALUATION
for the
DOE RUN RESOURCE CORPORATION
at
HERCULANEUM, MISSOURI

Prepared by:

Jacobs Engineering Group Inc. - Federal Operations
13723 Riverport Drive
Maryland Heights, Missouri 63043

May 2002

JACOBS ENGINEERING

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1.0 INTRODUCTION

1.1 Other Areas Evaluation

This Field Sampling Plan (FSP) was developed pursuant to the stipulations presented in the Administrative Order on Consent (AOC) entered into by the Doe Run Resource Corporation and the USEPA, Region VII. This FSP addresses the following areas identified in the AOC as areas requiring further evaluation. These areas include:

- Facility Wide Shallow Groundwater
- Old Slag Pile
- Interim Slag Storage Area
- Solvent Usage Areas
- Former UST Sites
- Wastewater Treatment Plant

Following the culmination of all the sampling and or evaluation activities detailed in this plan an Other Areas Evaluation Report will be produced.

2.0 BACKGROUND INFORMATION

2.1 FACILITY DESCRIPTION

The Doe Run lead smelter has been in continuous operation since the late 1800's and is one of the largest lead smelters of its kind in the United States. The Doe Run site is an active lead smelting facility, currently owned and operated by the Doe Run Resource Corporation. The smelter is located in Jefferson County Missouri, in the town of Herculaneum approximately 20 miles south of St. Louis, see Figure 2-1. The facility encompasses approximately 52 acres and consists of two main areas, the smelter plant and the slag pile storage area south of the plant. A detailed drawing of the smelter is presented in Figure 2-2. The site is bordered on the east by the Mississippi River, on the west and north-northwest by Joachim Creek, on the north and west by residential area of the city of Herculaneum. A portion of the site is located in the floodplain wetlands of Joachim Creek.

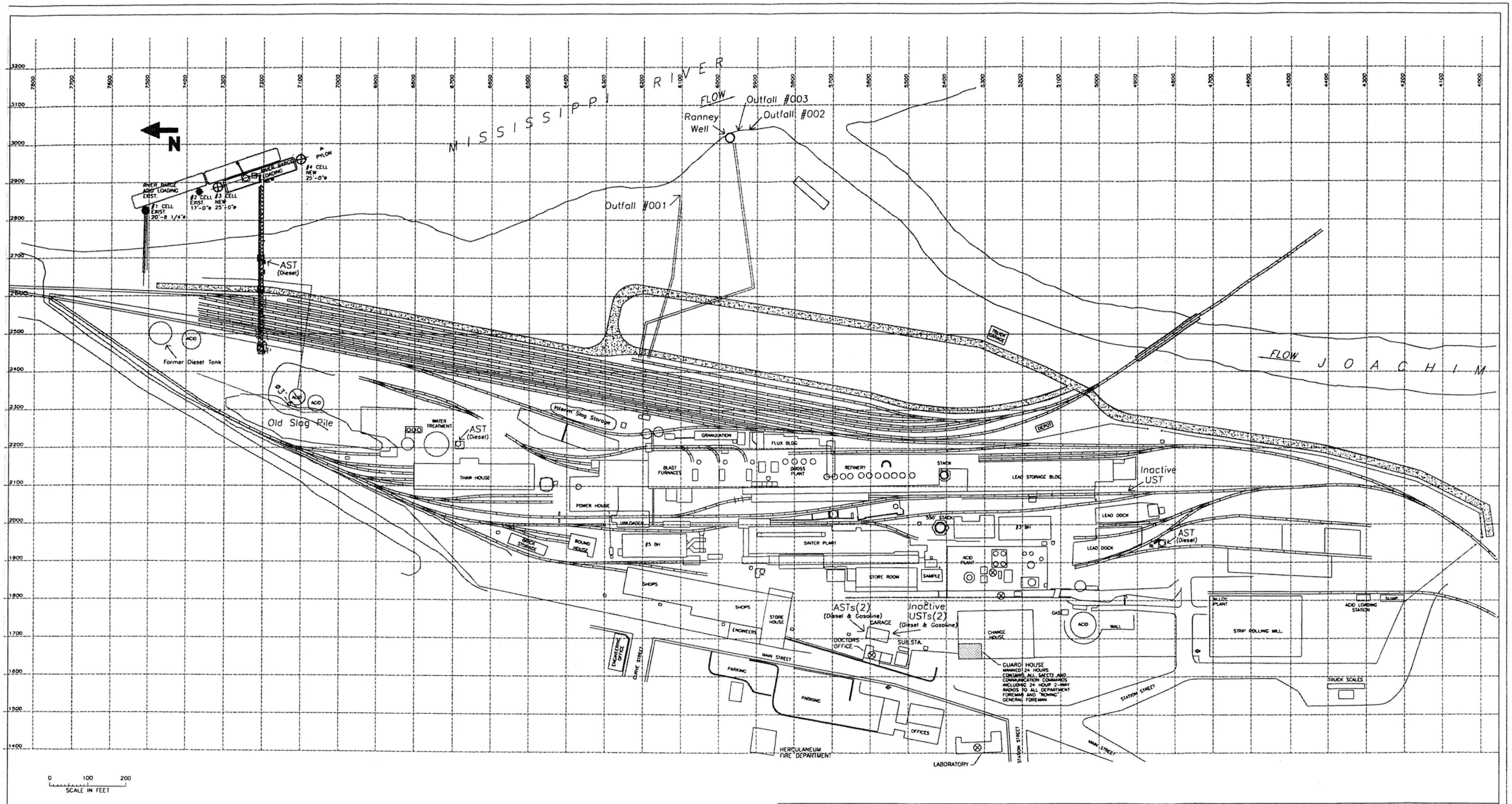
2.2 SITE HISTORY

In 2000, Doe Run Resource Corporation of New York and the United States Environmental Protection Agency, Region VII, along with the Missouri Department of Natural Resources (MDNR) entered into a Administrative Order On Consent pursuant to Sections 104, 106, 107, and 122 of the Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA) as amended. Presently the Dou Run Company is in the process of remediating lead contaminated soils in residential portions of the town of Herculaneum.

4"=1 MILE

1/4 0 1/4

JACOBS ENGINEERING	Herculaneum Site Map Herculaneum Smelter Facility and Slag Storage Area	DWN:	DES.:	PROJECT NO.: 19X90400
		CHKD:	APPD:	FIGURE NO.: 2-1
		DATE: AUG 01	REV.:	



JACOBS ENGINEERING

Facility Lay Out Map
Doe Run Resource Corp.
Herculaneum, Missouri

PROJECT NO.: 19X90400

FIGURE NO.: 2-2

3.0 OTHER AREAS OF EVALUATION

3.1 FACILITY WIDE GROUNDWATER EVALUATION

3.1.1 Description

A detailed discussion of the geology and hydrogeology in the vicinity of the Doe Run facility is presented in the 2000 Final Groundwater Monitoring Program (FGMP) report dated March 2001 by Maxim Technologies, Inc. (Maxim). Additional information concerning physical setting and hydrogeology is available in the Groundwater Monitoring Plan (GMP) for the Slag Storage Area prepared by Jacobs Engineering.

3.1.2 Sampling Rational

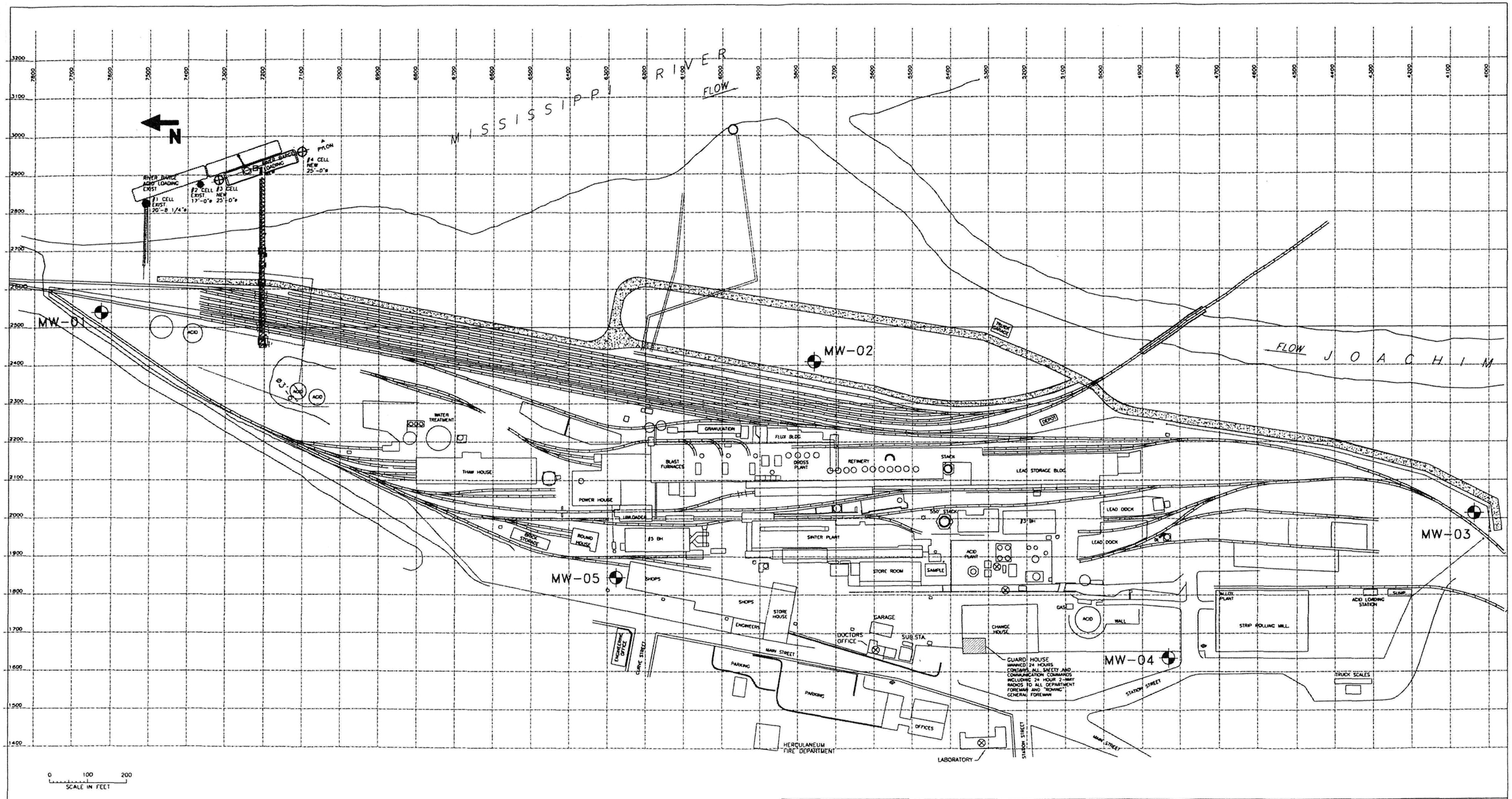
The attempt of this facility wide monitoring program is to set up a shallow groundwater monitoring network in the vicinity of the Doe Run facility to evaluate whether present or past site operations are potentially impacting the shallow groundwater underlying the facility.

3.1.3 Sampling Strategy

As part of the facility wide groundwater monitoring program, a series of five shallow groundwater monitoring well are to be installed around the periphery of the Doe Run facility to evaluate shallow groundwater and to establish baseline conditions. Two of the five monitoring wells will be positioned on the up-gradient side of the facility and, the remaining three wells will be located on the down-gradient side of the facility. Approximate locations of the proposed monitoring wells are presented in Figure 3-1. These shallow monitoring wells are to be screened in the first water bearing zone within the unconsolidated sediments underlying the Doe Run Facility. No wells are anticipated to be installed in the underlying bedrock as part of this study.

All proposed shallow monitoring wells installed as part of this facility wide groundwater monitoring program are to be installed following the procedures specified in the previously developed Groundwater Monitoring Plan. Applicable specific Work Instruction (SOPs) included in Appendix III, Part II "Field Sampling Plan" of the Groundwater Monitoring Plan include:

- WI-002 Drilling and Monitoring Well Instruction
- WI-004 Monitoring Well Development



Proposed Shallow Monitoring Well Locations

JACOBS ENGINEERING

Monitoring Well Location
Doe Run Smelter Facility
Herculaneum, Missouri

PROJECT NO.: 19X90400

FIGURE NO.: 3-1

3.1.4 Groundwater Sampling Requirements

The five wells are to be sampled quarterly for a period of one year for use in determining baseline conditions of the shallow groundwater underlying the Doe Run facility. Future sampling activities will be based upon the results of the quarterly sampling. Groundwater samples collected during each of the 4 quarterly sampling events will be submitted to a contracted laboratory for VOC, SVOC, and Target Analyte List (TAL) Metals analysis. Quality Control (QC) samples including, field blanks, and equipment rinseate blanks are to be collected at a frequency of 20% or at a minimum once every sampling event. If no VOCs or SVOCs are detected during the first quarter of sampling, they will not be included in the following quarterly sampling events. A summary of the quantity of primary and duplicate samples is presented in Table 3-1.

TABLE 3-1
GROUNDWATER SAMPLING REQUIRMENTS

PARAMETER	PRIMARY SAMPLES	QC SAMPLES	FIELD BLANKS	EQUIP. BLANKS	TRIP BLANKS
VOCs	20	4	4	4	4
SVOCs	20	4	4	4	0
TAL Metals	20	4	4	4	0

3.1.5 Sampling Procedures

During each of the four quarterly sampling events, each of the wells shall be purged, and sampled according to the sampling procedures presented in the previously prepared Groundwater Monitoring Plan (Jacobs, 2001) and the Sampling and Analysis Plan for the Slag Investigation (ELM Consultants, 2001). Other Applicable specific Work Instruction (SOPs) included in Appendix III, Part II "Field Sampling Plan" of the Groundwater Monitoring Plan include:

- WI-014 Groundwater Purging and Sampling Procedures
- WI-025 Environmental Sample Management
- WI-026 Chain-of-Custody Forms
- WI-027 Project Administration, Packaging. And Shipping Environmental Samples

- WI-035 Field Logbooks
- WI-036 Equipment Decontamination Procedures

3.2 OLD SLAG PILE

3.2.1 Description

The old Slag Pile area is located in the northern portion of the Doe Run facility adjacent to the acid storage tanks, see Figure 2-2. In the Administrative Order On Consent, the old slag pile is erroneously indicated as being near the acid plant which is located in the southern portion of the facility. The pile is comprised of various types of slag that have been produced over the course of the facility's past operational history. This slag material ranges from a relatively coarse-grained material to a somewhat fine-grained material, and in some portions of the old slag pile area, the slag material appears to be almost vitrified. The old slag pile area encompasses an area of approximately 37,000 square feet and is on the order of 400-500 ft long by approximately 150 ft wide at its widest section and approximately 40 to 60 ft in height. This slag material has been at this location within the facility for a considerable amount of time, and part of the old slag pile forms the foundation for the two acid storage tanks and their associated piping.

3.2.2 Sampling Rational

To evaluate whether the old slag pile is potentially impacting the surrounding area, a series of surface water samples will be collected from drainage pathways following a rainfall event of at least 0.1 inch in magnitude which results in a measurable discharge. Based upon the nature of the slag material, surface water runoff is thought to be the predominant transport mechanism for the conveyance of any potential contaminants that may stem from the old slag pile area.

3.2.3 Sampling Strategy

Prior to conducting any surface water sampling, the area around the old slag pile will be evaluated and all drainage pathways leading from the old slag pile will be identified. This evaluation will consist of a topographical survey of the area along with field reconnaissance during or immediately following a significant rainfall event to identify the drainage pathways. Then, based upon the surface water drainage pathway evaluation, suitable surface water sampling locations will be identified. For planning purposes, it is assumed that this surface