APPENDIX E
FINANCIAL ASSURANCE FOR HERCULANEUM LEAD SMELTER FACILITY

I. Introduction

1. This Appendix sets forth the obligations of The Doe Run Resources Corporation and The Doe Run Resources Corporation d/b/a The Doe Run Company ("Doe Run") to secure and maintain Financial Assurance as required under Paragraph 130 of the Consent Decree, including schedules and notice requirements. Submittals requiring EPA and State approval shall be submitted pursuant to Section XXIII (Notices) of the Consent Decree. "EPA and State approval" or "determination" as used in this Appendix shall not be subject to judicial review, but shall be subject to Dispute Resolution (other than judicial review) pursuant to Section XIX (Dispute Resolution) of the Consent Decree, unless otherwise specified in this Appendix. Any time period specified by this Appendix may be changed by written agreement of the Parties and is not a material modification of the Consent Decree. Any proposed material modification to this Appendix will be agreed to in writing by the Parties pursuant to Section XXVI (Modification) of the Consent Decree.

2. Pursuant to Paragraph 14 of the Consent Decree, Doe Run has agreed to cease the smelting of lead concentrates at the Herculaneum Lead Smelter Facility and allow redevelopment of the property. An ongoing re-purposing study may assist Doe Run in determining the future use of the Herculaneum Lead Smelter Facility. Doe Run may continue to use a portion of the property for lead refining, casting and alloying purposes. The actions to address the contamination at the Herculaneum Lead Smelter Facility will be affected by the determination of the future use of the property. Doe Run agrees to implement and complete a remediation process, similar to RCRA corrective action, to address all site contamination at the Herculaneum Lead Smelter Facility, including any slag located at the north end of the Herculaneum Lead Smelter Facility, prior to the redevelopment or reuse of any of the property at the Herculaneum Lead Smelter Facility. All proposed time periods in this Appendix may be affected by the determination of the future use of the property.

3. Doe Run agrees to conduct a Remedial Action to remediate all site contamination at the Herculaneum Lead Smelter Facility to health-based cleanup levels appropriate for the future use of the property. To initiate the Remedial Action process Doe Run shall develop a Work Plan for approval by EPA and the State by January 1, 2013, unless extended by EPA, to investigate all sources of site contamination. This work plan shall address the identification of all sources of site contamination; provide recommendations for the appropriate Remedial Action to address site contamination, similar to a RCRA Facility Investigation and Corrective Measures Study (RFI/CMS); and provide a schedule for completion of the investigation work and study, and completion of the RFI/CMS-type documents, which completion shall be no later than December 31, 2013, unless this deadline is extended by EPA pursuant to the terms of the Consent Decree. After submittal of the RFI/CMS-type documents in accordance with the EPA-approved work plan and schedules therein, EPA, after consultation with the State, will develop a Remedial Action proposal to address site contamination. After public comment, EPA, after consultation with the State, will complete a decision document describing the selected remedy.

Doe Run shall develop a Work Plan to implement the final Remedial Action at the Herculaneum Lead Smelter Facility. EPA and the State will coordinate with Doe Run to develop an appropriate schedule for completion of these activities. The development of documents for planning, scheduling and implementing the Remedial Action at the Herculaneum Lead Smelter Facility shall be non material modifications to the Consent Decree agreed to in writing by the Parties.

II. Definitions

4. Except as otherwise provided in this Appendix, terms used in this Appendix which are defined in 40 C.F.R. § 264.141 shall have the meaning assigned to them in such regulations. Whenever the terms set forth below are used in this Appendix, the definitions set forth below shall apply. However, the definitions below only apply to matters relating to Financial Assurance under this Consent Decree.

"Effective Date" shall mean the date upon which the Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket.

"Estimated Cost of Work" shall mean the EPA- and State-approved cost estimates for Remedial Action to address contamination at the Herculaneum Lead Smelter Facility as necessary to allow for the future use of the property.

"Current Dollars" shall mean U.S. dollars in the year actually received or paid, unadjusted for price changes or inflation.

"Doe Run" shall mean The Doe Run Resources Corporation and The Doe Run Resources Corporation d/b/a/ The Doe Run Company.

"Financial Assurance" shall mean a written demonstration of financial capability, in compliance with the terms of this Appendix, to implement the Remedial Action to address all contamination at the Herculaneum Lead Smelter Facility in an amount at least equal to the approved Estimated Cost of Work.

"Financial Mechanism" shall mean the mechanism or instrument specified in this Appendix used to secure funding for the Financial Assurance obligation under the Consent Decree.

"GAAP" shall mean U.S. Generally Accepted Accounting Principles.

"Herculaneum Lead Smelter Facility" shall mean the Herculaneum Lead Smelter Facility located in Herculaneum, Missouri and the approximately 57 acres of property associated with the operation of this Primary Lead Smelter and described in the initial Estimated Cost of Work and Figure 1 attached thereto. This definition does not include the south

slag storage area, which is being addressed under an Administrative Order on Consent with EPA, Docket No. RCRA-7-2000-0018/CERCLA-7-2000-0029.

"Remedial Action" shall mean those actions required to address contamination at the Herculaneum Lead Smelter Facility as necessary to allow for the future use of the property, which could include closure and post-closure type activities.

III. Cost Estimates

5. Doe Run has provided to the EPA and the State an initial Estimated Cost of Work, dated June 23, 2010, in current dollars, of the cost of hiring a third party to perform the Remedial Action to address the contamination at the Herculaneum Lead Smelter Facility (hereafter "Estimated Cost of Work"). This initial Estimated Cost of Work is attached to this Appendix as Attachment 1, and shall form the basis for Financial Assurance pursuant to Section IV of this Appendix until Doe Run is required to revise the Estimated Cost of Work in 2014 pursuant to Paragraph 8 of this Appendix. A "Third Party" is a party who (i) is neither a parent nor a subsidiary of Doe Run and (ii) does not share a common parent or subsidiary with Doe Run.

6. The Estimated Cost of Work shall be calculated based on the point in time when the extent and manner of the operation of the Herculaneum Lead Smelter Facility would make the Remedial Action and the associated activities the most expensive, and based on what it would cost to hire a Third Party to complete the Remedial Action at the Herculaneum Lead Smelter Facility.

7. Doe Run shall not include in the Estimated Cost of Work any credit for salvage value or a zero cost for handling hazardous waste with potential future value, as set forth in 40 C.F.R. § 264.142(a)(3)and(4), incorporated by reference in 10 CSR 25-7.264(1).

8. Doe Run shall submit annually to EPA and the State for approval, beginning in 2014, a revised written Estimated Cost of Work, together with supporting documentation, reflecting inflationary adjustments, significant cost adjustments and/or changes – either upward or downward – to the Herculaneum Lead Smelter Facility Remedial Action . The revised Estimated Cost of Work in 2014 shall address the information obtained during the Site Investigation and any completed investigation activities. The annual updates of the Estimated Cost of Work shall be due sixty (60) days before the anniversary of the establishment of the selected Financial Mechanism. In preparing the revised Estimated Cost of Work Doe Run shall use the most recently published Implicit Price Deflator for the Gross Domestic Product.

9. Notwithstanding any provisions of the Consent Decree, Doe Run shall maintain at the Herculaneum Lead Smelter Facility for the duration of this Consent Decree the latest approved Estimated Cost of Work prepared in accordance with this Appendix.

10. Beginning in 2014, the Estimated Cost of Work shall account for the total costs of the Remedial Action, as described in an approved Work Plan, including any necessary long term costs, such as operation and maintenance costs and monitoring costs as appropriate.

IV. Financial Assurance for Herculaneum Lead Smelter Facility

11. Within ten (10) days of approval of the draft trust fund agreement by EPA and the State, or within thirty (30) days of the Effective Date of the Consent Decree, whichever is later, Doe Run shall provide to EPA and the State an originally signed certification by Doe Run's Chief Financial Officer ("CFO"), together with supporting documentation, including a complete executed trust fund agreement, confirming that it has secured Financial Assurance for 25% of the Estimated Cost of Work. Additionally, for the next three years on the anniversary date Doe Run provided the initial Financial Assurance, Doe Run shall provide similar documentation of Financial Assurance for an additional 25% of the Estimated Cost of Work, until Doe Run has provided documentation of Financial Assurance for 100% of the Estimated Cost of Work. Doe Run shall ensure that the amount of funds in the trust covers any increases in the Estimated Cost of Work, including inflationary adjustments.

12. The Financial Mechanism used to secure the Financial Assurance obligation shall be in the form of an interest bearing trust fund established for the benefit of EPA and the State, administered by a trustee who has the authority to act as a trustee under Federal or State law, whose trust operations are regulated and examined by a Federal or State agency, and that is acceptable in all respects to the EPA and the State.

13. The trust agreement shall provide that the trustee shall make payments from the fund as directed by the EPA Superfund Special Emphasis and Remedial Branch Chief, after consultation with the State, in writing (1) to reimburse Doe Run from the fund for expenditures made by Doe Run for Remedial Action performed in accordance with this Consent Decree, or (2) to pay any other person whom the EPA Superfund Special Emphasis and Remedial Branch Chief, after consultation with the State, determines has performed or will perform the Remedial Action in accordance with this Consent Decree. The trust agreement shall further provide that if after completion of the Remedial Action at the Herculaneum Lead Smelter Facility, money remains in the trust, the trustee shall not refund to Doe Run any remaining amounts from the fund unless and until EPA, after consultation with the State, has advised the trustee that the Remedial Action at the Herculaneum Lead Smelter Facility under this Consent Decree has been successfully completed.

14. After beginning the Remedial Action Doe Run or other person authorized to conduct the Remedial Action may request reimbursements for Remedial Action expenditures by submitting itemized bills to the trustee, the EPA Superfund Special Emphasis and Remedial Branch Chief and the State. Doe Run may request reimbursement for Remedial Action only if sufficient funds are remaining in the trust fund to cover the maximum costs of the remaining Remedial Action. Within thirty (30) days after receiving bills for Remedial Action the EPA Superfund Special Emphasis and Remedial Branch Chief, after consultation with the State, will instruct the trustee to make reimbursements in those amounts as the EPA Superfund Special Emphasis and Remedial Branch Chief specifies in writing and/or shall file an Objection Notice pursuant to the trust agreement.

15. Doe Run shall use the exact wording specified in Appendix F to the Consent Decree for the trust agreement. The trust agreement must be accompanied by a formal certification of acknowledgment (See 40 C.F.R. § 264.151(a)(2)) . Doe Run shall update the

trust fund amount within sixty (60) days after a change in the amount of the Estimated Cost of Work subject to approval by EPA and the State.

16. Doe Run shall pay all expenses incurred by the trustee in connection with the administration of the trust fund as consistent with the Remedial Action and the approved Work Plan, including fees for legal services rendered to the trustee and compensation of the trustee.

17. For the Financial Assurance provided under this Section, Doe Run shall submit a draft trust fund agreement and related documents to the EPA and the State for review and approval within thirty (30) days of the Date of Lodging of the Consent Decree. Within ten (10) days of approval of the draft trust fund agreement or within thirty (30) days of the Effective Date of the Consent Decree, whichever is later, Doe Run shall execute or otherwise finalize the trust fund agreement in order to make the Financial Assurance legally binding in a form substantially identical to the trust fund agreement reviewed and approved by EPA and the State. Doe Run shall submit the executed and/or otherwise finalized trust fund agreement to EPA and the State within ten (10) days of approval of the draft trust fund agreement or within thirty (30) days of the Effective Date of the Consent Decree, whichever is later.

18. Doe Run shall submit all trust fund agreement and related required documents by certified mail to the EPA Region 7 Financial Management Officer and the Director of the Hazardous Waste Program for the Missouri Department of Natural Resources at the addresses listed below. Copies shall also be sent to the EPA and State Project Officers.

For the EPA:

Region 7 Financial Management Officer
U.S. Environmental Protection Agency
901 North 5th Street
Kansas City, Kansas 66101.

For the State:

Director
Hazardous Waste Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

19. Doe Run shall provide adequate Financial Assurance, in the form of a trust fund that conforms to the requirements of this Appendix. Doe Run shall make changes to the Financial Assurance if the following occurs:

a. If at any time EPA or the State determine that the trust fund provided pursuant to this Section is inadequate, or no longer satisfies the requirements set forth or incorporated by reference in this Appendix, whether due to an increase in the

Estimated Cost of Work or for any other reason, EPA or the State shall so notify Doe Run in writing. Within thirty (30) days of receipt of notice of EPA's or the State's determination, Doe shall obtain and present to EPA and the State for approval an alternate or updated trust fund that satisfies all requirements set forth or incorporated by reference in this Appendix. If Doe Run needs additional time to provide the alternate or updated trust fund, Doe Run shall request an extension, in writing, within ten (10) days of EPA's or the State's determination. Doe Run's request shall include an explanation for the additional time and specify when the alternate or updated trust fund will be in place. Doe Run shall not rely upon the alternate or updated trust fund, nor shall Doe Run terminate the original trust fund, until EPA, and the State have approved the alternate or updated trust fund.

b. If at any time Doe Run becomes aware of information indicating that the trust fund provided pursuant to this Section is inadequate or no longer satisfies the requirements set forth or incorporated by reference in the Appendix, whether due to an increase in the Estimated Cost of Work or for any other reason, then Doe Run shall notify EPA and the State in writing of such information within ten (10) days. Within thirty (30) days of Doe Run's becoming aware of such information, Doe Run shall obtain and present to EPA and the State for approval an alternate or updated trust fund that satisfies all requirements set forth or incorporated by reference in this Appendix. If Doe Run needs additional time to provide the alternate or updated trust fund, Doe Run shall request an extension, in writing, within ten (10) days of EPA's or the State's determination. Doe Run's request shall include an explanation for the additional time and specify when the alternate or updated trust fund will be in place. Doe Run shall not rely upon the alternate or updated trust fund, nor shall Doe Run terminate the original trust fund, until EPA, and the State, have approved the alternate or updated trust fund.

20. Doe Run's inability or failure to establish or maintain Financial Assurance for completion of the Remedial Action at the Herculaneum Lead Smelter Facility shall in no way excuse performance of any other requirements of this Consent Decree, including, without limitation, the obligation of Doe Run to complete the Remedial Action at the Herculaneum Lead Smelter Facility in accordance with the terms of the Consent Decree.

21. Modification of Amount and Form of Financial Assurance.

a. Reduction of Amount of Financial Assurance. If Doe Run believes that the Estimated Cost to complete the remaining Remedial Action has diminished below the amount covered by the existing Financial Assurance provided under this Consent Decree, Doe Run may, at the same time that Doe Run submits the annual revised Estimated Cost of Work, pursuant to Paragraph 8 of this Appendix, or at any other time agreed to by EPA and the State, submit a written proposal to EPA and the State to reduce the amount of the Financial Assurance provided so that the amount of the Financial Assurance is equal to the estimated cost of the remaining Remedial Action to be performed. The written proposal shall specify, at a minimum, the cost of the remaining Remedial Action to be performed and the

basis upon which such cost was calculated. In seeking approval of a revised Financial Assurance amount, Doe Run shall follow the procedures set forth in Paragraph 21.b of this Section. If EPA and the State decide to accept such a proposal, EPA and the State shall notify Doe Run of their decision in writing. After receiving EPA's and the State's written decision, Doe Run may reduce the amount of the Financial Assurance only in accordance with and to the extent permitted by such written decision. In the event of a dispute, Doe Run may reduce the amount of the Financial Assurance required hereunder only in accordance with the final EPA and State Dispute Decision resolving such dispute pursuant to Paragraph 1 of this Appendix and Section XIX (Dispute Resolution) of the Consent Decree. Changes to the form or terms of any Financial Assurance provided under this Section, other than a reduction in amount, are authorized only in accordance with Paragraph 21.c of this Section.

b. Release of Financial Assurance. Doe Run may submit a written request to the EPA Superfund Special Emphasis and Remedial Branch Chief and the State that EPA and the State release Doe Run from the requirement to maintain Financial Assurance under this Section at such time as EPA and the State agreed that all Remedial Action at the Herculaneum Lead Smelter Facility is complete pursuant to Section XXVII (Termination) of the Consent Decree. The EPA Superfund Special Emphasis and Remedial Branch Chief and the State, shall notify both Doe Run and the provider(s) of the Financial Assurance that Doe Run is released from all Financial Assurance obligations under this Consent Decree. In the event of a dispute, Doe Run may release, cancel, or terminate the Financial Assurance required hereunder only in accordance with the final EPA and State dispute decision.

c. Change of Form of Financial Assurance.

i. If Doe Run desires to change the form or terms of Financial Assurance, Doe Run may, at the same time that Doe Run submits the annual revised Estimated Cost of Work, pursuant to Paragraph 8 of this Appendix, or at any other time agreed to by EPA and the State, submit a written proposal to EPA and the State to change the form of Financial Assurance. The submission of such proposed revised or alternative form of Financial Assurance shall be as provided in Paragraph 21.c(ii) below. The decision whether to approve a proposal submitted under this Paragraph 21.c shall be made in EPA's and the State's sole and unreviewable discretion and such decision shall not be subject to challenge by Doe Run pursuant to the dispute resolution provisions of this Consent Decree or in any other form.

ii. A written proposal for a revised or alternative form of Financial Assurance shall specify, at a minimum, the cost of the remaining Remedial Action at the Herculaneum Lead Smelter Facility, the basis upon which such cost was calculated and the proposed revised form of Financial Assurance, including all proposed instruments or other documents required in order to make the proposed Financial Assurance

legally binding. The proposed revised or alternative form of Financial Assurance shall satisfy all requirements of this Consent Decree. Any proposed alternative Financial Assurance other than a trust fund shall comply with the requirements set forth in 40 C.F.R. Section 264.143. EPA and the State shall notify Doe Run in writing of their decision to accept or reject a revised or alternative form of Financial Assurance submitted pursuant to this paragraph. Within ten (10) days after receiving a written decision approving the proposed revised or alternative Financial Assurance, Doe Run shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected Financial Assurance legally binding in a form substantially identical to the documents submitted to EPA and the State as part of the proposal, and such Financial Assurance, shall be fully effective. Doe Run shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected Financial Assurance legally binding to EPA Region 7 Financial Management Officer and the State within thirty (30) days of receiving a written decision approving the proposed revised or alternative Financial Assurance, with a copy to the EPA Project Officer and the State. EPA and the State shall release, cancel, or terminate the prior existing Financial Assurance instruments only after Doe Run has submitted all executed and/or otherwise finalized new Financial Assurance instruments or other required documents to EPA and the State.

22. Incapacity of Owners or Operators, or Financial Institutions (40 C.F.R. § 264.148, incorporated by 10 CSR 25-7.264(1)). Doe Run shall notify the EPA Superfund Special Emphasis and Remedial Branch Chief and the State by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming Doe Run as debtor, within ten (10) days after commencement of the proceeding, in accordance with 40 CFR § 264.148, incorporated by reference in 10 CSR 25-7.164(1). Doe Run will be deemed to be without the required Financial Assurance or liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee. Doe Run must establish other Financial Assurance within sixty (60) days after such an event.

Financial Assurance Cost Estimate Report

The Doe Run Resources Corporation
Herculaneum Lead Smelter Facility

Prepared for
The Doe Run Resources Corporation

June 23, 2010

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Financial Assurance Cost Estimate Report
The Doe Run Resources Corporation
Herculaneum Lead Smelter Facility

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1.0 Introduction

This Report estimates costs for The Doe Run Resources Corporation (Doe Run) to address contamination at the Herculaneum Lead Smelter Facility (Smelter Facility) located in Herculaneum, Missouri associated with the smelter operations following cessation of the primary smelting operations (i.e., operation of the sintering machine, blast furnace and acid plant). This Report describes the environmental issues and assumptions used for the basis of this initial cost estimate that includes each of the five areas of the Smelter Facility grouped together as "operable units" for remedial purposes and described herein. The "Herculaneum Lead Smelter Facility" for purposes of this cost estimate consists of the operable units: (1) Old Slag Storage Area; (2) East Storage Area (3) Interior Plant Structures (including the Eastern Railroad Spurs); (4) Equipment Materials Handling Area; and (5) East Support Buildings that are depicted in Figure 1.

The scope of the work included identifying and screening potential environmental issues at the Doe Run Herculaneum Lead Smelter Facility, logically grouping together areas of the plant depending on their utility for reuse either by Doe Run or by another party, evaluating costs associated with investigation and remedial actions for those areas, and presenting the cost estimate. The purpose of this Report is to provide an initial cost estimate to form the basis for securing financial assurances for the Smelter Facility.

2.0 Smelter Facility Background

The Doe Run Herculaneum Lead Smelter Facility is located at 881 Main Street, Herculaneum, Missouri. The Herculaneum Lead Smelter Facility smelts raw lead-bearing concentrate along with other metallurgical reagent materials into lead metals. Refined lead metal and lead alloy is the finished product manufactured at the Smelter Facility.

The Herculaneum Lead Smelter Faeility has been in operation since 1892. The Smelter Facility has been modified to upgrade technology, maintain capacity, and reduce the potential for pollution as a routine part of smelter management and as required by applicable environmental requirements. The Herculaneum Lead Smelter is generally located on the U.S. Geological Survey (USGS) Herculaneum 7.5 minute quadrangle map in Section 20 and Section 29, Township 41 North, Range 6 East. The "Herculaneum Lead Smelter Facility" consists of the approximately 57 acres as presented in Figure 1.

The smelting process produces a waste product known as slag, a glassy, sand-like material. This material is currently deposited in a permitted slag storage area (SSA) located south/southwest of the Herculaneum Lead Smelter in the Joachim Creek bottomland. The SSA is bounded on the south, southeast, and west by Joachim Creek; on the east by the Herculaneum Sewer District Wastewater Treatment Plant; and the north by a residential area and portions of the Herculaneum Lead Smelter Facility. This south slag storage area is being addressed under an EPA Administrative Order on Consent with EPA, Docket No. RCRA-7-2000-0018/CERCLA-7-200-0029 ("SSA AOC").

3.0 Environmental Operable Units & Assumptions

3.1 Introduction

This Report divides the Herculaneum Lead Smelter Facility area into areas called "operable units" and provides the assumptions used in preparing this initial Cost Estimate. Based on historical operations and current information the main environmental concern throughout the Smelter Facility is surface soil contamination that will require investigation and mitigation of human exposure risk through contaminant isolation. Although not a primary concern, groundwater will also be addressed at the Smelter Facility as described below in Section 3.7. The assumed remedy for the operable units with potential environmental concerns is discussed in the following paragraphs. The operable units were selected based on plant operations and physical location. The environmental operable units within the Smelter Facility are shown on Figure 1.

3.1.1 Cost Assumptions

The estimated costs were based on actual costs obtained from environmental remediation companies and from the RS Means Heavy Construction Cost Data guidelines. The estimated costs presented in the following sections and as summarized in Table 1, include soil sampling; groundwater well installation and monitoring; remedial construction; engineering costs; inspection and maintenance of soil or pavement cover material; implementation and maintenance of institutional controls; and decontamination costs for certain structures. A contingency item was included as a component of each cost estimate. The detailed environmental cost estimates are provided in Appendix A.

For the remedial approach, Doe Run has made certain assumptions based on the Company's plans for continued use and operation of the Property after the cessation of the sinter machine, blast furnaces, and acid plant. Doe Run plans to continue operations at the Smelter Facility that may include casting and alloying operations. Based on current information, Doe Run assumed that the operable units described herein as, the Old Slag Storage Area, Interior Plant Structures (which includes the Eastern railroad Spurs), Eastern Support Buildings and Equipment Materials Handling Area, collectively, would require a pavement cover for the operating areas, which was estimated at 1/3 of the acreage for those operable units. The remainder of the collective acreage for those operable units would be covered with a topsoil buffer/vegetative layer and used for green space. The only exception to this assumption is that it was presumed that the East Storage Area will have a soil cover. This is an area across the railroad track and East of the Smelter Plant and has been used for storage. Therefore, a pavement cover is not anticipated because no future operations are planned in this area.

Additional redevelopment of the Herculaneum Lead Smelter Facility by other parties or for other purposes by Doe Run is not known at this time and consequently this assumption and others herein will be revised accordingly. Similarly, this information is an initial estimate only and will be revised as more is known regarding the contamination at the Site and the remedy selected based on the plans for reuse and redevelopment of the Smelter Facility.

This Report presumes and includes an estimate for costs for an engineered barrier for the entire Herculaneum Lead Smelter and therefore, the extent of contaminant hotspots will not need to be identified. As a result, the costs for identification of hot spot sampling are not included herein.

3.1.2 Soil Sampling Assumptions

As stated above, for purposed of this Cost Estimate the Herculaneum Lead Smelter Facility was divided into the operable units as described in the following sections of this report. Each operable unit will be divided into a sample grid system to determine the extent and magnitude of soils contaminated with metals. Each sample grid will cover 32-foot by 32-foot sample sizes. Each grid will have one representative sample collected from a 0-6-inch depth below the surface and another sample from the 12-24-inch depth. The proposed grid size should be more than adequate and is typical for soil investigations and redevelopment projects. It is also reasonable in light of the total engineer barrier that is assumed in this estimate. The sampling depth of 6 inches will provide information on likely surface soil exposure. The sample taken at a depth of 12-24 inches is to provide information and is sufficient (based on the primary concern for metals contamination) to determine the vertical extent of contamination. Thus, all areas of the highest surface contamination and the vertical extent of the metals contamination will be identified.

The estimate assumes that all soil samples will be analyzed for lead, zinc, and cadmium. Based on the historical and current lead smelting operations, lead, zinc and cadmium are the contaminants of concern. In addition, 10% of the soil samples will also be analyzed for pH and other RCRA heavy metals including arsenic, mercury, silver, barium, nickel, and chromium. The pH sample analyses will come from samples collected at the surface. Doe Run will also collect a duplicate sample for every 20^{th} sample grid.

3.2 Old Slag Storage Area

The estimated surface area of the Old Slag Storage Area (OSSA), which includes everything north of the Power House and New Dross Building, south of the boat ramp, east of Ferry Road, and west of the railroad tracks, is approximately 9.5 acres. For this cost estimate, The Doe Run Company will

need to continue use of the holding tanks and wastewater treatment plant (WWT) to treat other process water and storm water after ceasing operation of the sinter machine, blast furnaces and acid plant. The exclusion of those particular areas that will continue to be used reduces the acreage to nine acres.

The following is a summary of the estimated environmental costs.

3.2.1 Field-Sampling Work

As stated above, it was estimated that the regulatory oversight agency would require testing for metals at approximately 32-foot by 32-foot (1,000 square feet) intervals, resulting in approximately 400 soil sample locations (800 total samples) for the OSSA. Near surface (0-6 inches) and shallow subsurface (1-2 feet) soil sampling for metals was assumed. A field-sampling plan will be prepared. The agency will also require that the site-wide Health & Safety Plan (HASP) and Quality Assurance Project Plan (QAPP) be updated. The costs of the HASP and QAPP are only included in the OSSA estimates given that one update of both plans should cover investigation and remediation of the Smelter Facility. It is estimated that the initial fieldwork will include the near surface and shallow subsurface sampling. Laboratory analysis and reporting is also necessary. These costs are collectively referred to as "non-contractor" costs in the detailed cost estimate spreadsheets provided in Appendix A. The estimated non-contractor costs for the OSSA are $110,000.

3.2.2 Remediation Work

The assumed closure method is a combination of a clean soil buffer (two-thirds of the area) and pavement (one-third of the area). The estimated surface area of the OSSA is nine acres. The cost of this remediation work is estimated at $1,040,000, which includes all grading and capping.

Removal or treatment of the top foot of slag is not practical given that several feet of material beneath the treated or excavated area are also assumed to be slag.

The clean soil buffer is assumed to include the addition of one foot of clean fill over existing shallow contamination throughout the applicable area of the OSSA. This approach will likely be used when most of the surface material is slag. Costs associated with this approach include the fill material, grading, and re-vegetation of the area.

The pavement portion of the work consists of paving the area with concrete or other material. Pavement costs of $30 per square yard were assumed, which includes all material, equipment, and labor costs.

A storm water collection area exists at the southeast corner of this area. Grading the OSSA to slope towards this collection area should be sufficient for storm water collection in this area. Grading costs have been incorporated into the cost estimate.

3.3 Equipment/Materials Handling Area

The Equipment/Materials Handling Area includes the entire southern portion of the Herculaneum Lead Smelter Facility. The land surface area of the portion bounded by pavement is estimated at approximately 14 acres, and this is the area used by Doe Run for calculating cost estimates. Within the 14 acres is an area used for storage of materials and is approximately 7 acres in size. The area includes ore unloading, an ore conveyer belt, and other material storage such as coke and flux agents. Sampling and remediation of this area is assumed to be conducted during environmental cleanup and reuse and repurposing of the Smelter Facility.

The work for this area is detailed in the following paragraphs.

3.3.1 Field-Sampling Work

This estimate assumes that near surface (0-6 inches) and shallow subsurface (1-2 feet) soil sampling for metals will be required across this entire area. Sampling at an approximate interval of one sample for every 32-foot by 32-foot (1,000 square feet) would yield approximately 610 soil sample locations for a total of 1,220 samples in this operable unit. A field-sampling plan will be prepared. It is estimated that the initial fieldwork will include the near surface and shallow subsurface sampling. Laboratory analysis and reporting will also be necessary. The estimated non-contractor costs are $210,000.

3.3.2 Remediation Work

The assumed closure method is a combination of a clean soil buffer (two-thirds of the area) and pavement (one-third of the area). The estimated surface area of the area is 14 acres. The cost of this remediation work is estimated at $1,560,000, which includes all grading and capping.

The clean soil buffer is assumed to include the addition of one foot of clean fill over existing shallow contamination throughout the applicable area. Costs associated with this approach include the fill material, grading, and re-vegetation of the area.

The pavement portion of the work consists of paving the area with concrete or other material. Pavement costs of $30 per square yard were assumed, which includes all material, equipment, and labor costs.

3.4 East Storage Area

The East Storage Area is located across the railroad tracks to the east of the main plant and includes a "bone yard" storage area. The area is bounded by the Mississippi River on the east, railroad tracks on the west, Joachim Creek on the southeast, a boat ramp on the north, and a railroad bridge over Joachim Creek to the south. The estimated surface area of the East Storage Area is 14 acres.

3.4.1 Field-Sampling Work

This report assumes that near surface (0-6 inches) and shallow subsurface (1-2 feet) soil sampling for metals will be required across this entire 14-acre area. Sampling at an approximate interval of one sample for every 32-foot by 32-foot (1,000 square feet) would yield approximately 610 soil sample locations for a total of 1,220 samples. A field-sampling plan will be prepared. It is estimated that the initial fieldwork will include the near surface and shallow subsurface sampling. Laboratory analysis and reporting will also be necessary. The estimated non-contractor costs are $210,000.

3.4.2 Remediation Work

The assumed closure method is placement of a clean soil buffer over the entire area. The estimated surface area of the OSSA is 14 acres. The cost of this remediation work is estimated at $880,000, which includes all grading and capping.

The clean soil buffer is assumed to include the addition of one foot of clean fill over existing shallow contamination throughout the applicable area. Costs associated with this approach include the fill material, grading, and re-vegetation of the area.

3.5 Interior Plant Structures

The Interior Plant Structures comprise 11 acres and consist of the central portion of the Herculaneum Lead Smelter Facility where the main smelting process and operations occur. The area also includes a series of railroad spurs (5 acres) bordering the plant on its east side. The land surface area of the interior plant structures and including the railroad spurs is estimated at approximately 16 acres and was used by Doe Run when calculating cost estimates. Sampling and remediation of this area is assumed to be conducted during environmental cleanup and reuse and repurposing of the Smelter Facility.

The work for this area is detailed in the following paragraphs.

3.5.1 Field-Sampling Work

This Report assumes that near surface (0-6 inches) and shallow subsurface (1-2 feet) soil sampling for metals will be required across this entire area. Sampling at an approximate interval of one sample for every 32-foot by 32-foot (1,000 square feet) would yield approximately 780 soil sample locations for a total of 1,560 samples. A field-sampling plan will be prepared. It is estimated that the initial fieldwork will include the near surface and shallow subsurface sampling. Laboratory analysis and reporting will also be necessary. The estimated non-contractor costs are $250,000.

3.5.2 Remediation Work

The assumed closure method is a combination of a clean soil buffer (two-thirds of the area) and pavement (one-third of the area). The estimated surface area of the area is 16 acres. The cost of this remediation work is estimated at $1,800,000, which includes all grading and capping.

The clean soil buffer is assumed to include the addition of one foot of clean fill over existing shallow contamination throughout the applicable area. Costs associated with this approach include the fill material, grading, and re-vegetation of the area.

The pavement portion of the work is paving the area with concrete or other material. Pavement costs of $30 per square yard were assumed, which includes all material, equipment, and labor costs.

3.6 East Support Buildings

The East Support Buildings area includes the entire central western portion of the Herculaneum Lead Smelter Facility where the support operations of the Smelter Facility occur on the east side of Main Street. The area does not include the support buildings on the west side of Main Street. The land surface area of the eastern support buildings is estimated at approximately 3.8 acres, and this is the area used by Doe Run for calculating cost estimates. Sampling and remediation of this area is assumed to be conducted during environmental cleanup and reuse and repurposing of the Smelter Facility.

The work for this area is detailed in the following paragraphs.

3.6.1 Field-Sampling Work

This Report assumes that near surface (0-6 inches) and shallow subsurface (1-2 feet) soil sampling for metals will be required across this entire area. Sampling at an approximate interval of one sample for every 32-foot by 32-foot (1,000 square feet) would yield approximately 200 soil sample locations for a total of 400 samples. A field-sampling plan will be prepared. It is estimated that the initial

fieldwork will include the near surface and shallow subsurface sampling. Laboratory analysis and reporting will also be necessary. The estimated non-contractor costs are $80,000.

3.6.2 Remediation Work

The assumed closure method is a combination of a clean soil buffer (two-thirds of the area) and pavement (one-third of the area). The estimated surface area of the area is 3.8 acres. The cost of this remediation work is estimated at $460,000, which includes all grading and capping.

The clean soil buffer is assumed to include the addition of one foot of clean fill over existing shallow contamination throughout the applicable area. Costs associated with this approach include the fill material, grading, and re-vegetation of the area.

The pavement portion of the work consists of paving the area with concrete or other material. Pavement costs of $30 per square yard were assumed, which includes all material, equipment, and labor costs.

3.7 Groundwater

Doe Run has previously conducted groundwater sampling since 1993 in the area of the South Slag Storage Area. Doe Run has constructed and sampled numerous wells in that area as required by its Metallic Minerals Permit. Doe Run currently monitors MW-3, MW-4, MW-10, and MW-13 on a quarterly basis (some wells have been closed previously to accommodate slag storage area construction). Quarterly analytes include total suspended solids, lead, zinc, and nickel, while annual analytes may also include arsenic, barium, cadmium, chromium, selenium, silver, mercury, antimony, beryllium, copper, cobalt, iron, and manganese. This monitoring has not revealed the presence of metals in shallow groundwater that poses a health threat.

This cost estimate assumes additional groundwater characterization and related costs at the Herculaneum Lead Smelter as proposed and submitted previously and titled Jacobs' May 2002 "Other Areas Evaluation". The plan proposes the construction of five new shallow groundwater monitoring wells at the periphery of the Herculaneum Lead Smelter to evaluate shallow groundwater. Two of the five monitoring wells would be positioned at the up-gradient side of the Smelter Facility and, the remaining three wells will be located on the down-gradient side of the Smelter Facility.

Doe Run assumes for this initial cost estimate the construction and monitoring of these additional five wells. After the initial quarterly sampling period for the first year, it was assumed that these five wells would be sampled on an annual basis for a three-year period at a yearly estimated cost of

$7,000, which includes labor, testing, and reporting. This estimate is based on the current amount it costs Doe Run to monitor its existing wells at the South Slag Storage Area wells under its Metallic Minerals Permit. Following the three-year sampling period and if appropriate based on the results, all five wells will be properly abandoned in accordance with Missouri monitoring well regulations. This time frame is appropriate based on the low levels of the constituents detected in the sampling at the South Slag Storage Area under the Metallic Minerals Program for approximately the past 15 years (in fact, most results are non-detect or below drinking water standards). In addition, the soils above groundwater under the Smelter Facility are comprised of clays and silty clays, which should act to retard any downward movement of metals into the groundwater. The soils under the South Slag Storage Area are more permeable, and since wells in this area have not shown any impacts from metals in the slag, Doe Run expects that the less permeable soils in the smelter area will yield similar groundwater results during testing of the proposed new wells.

These new groundwater monitoring wells would be sampled quarterly for the first year for the presence of metals (RCRA 8 metals), VOCs, SVOCs, and pH (in the field). The wells will be constructed to a depth of 30 feet below ground, with a screened interval between 20-30 feet below ground. The wells will be constructed with PVC casing and screen material. The costs for the new wells and monitoring at the Herculaneum Lead Smelter Facility for the time frames provided are as follows:

ADDITIONAL MONITORING REQUIREMENTS

Well installation	$50,000
Lab costs, four events	$15,000
Labor costs	$4,000
Equipment	$1,000
Reporting	$4,000
Well abandonment	$10,000
TOTAL FIRST YEAR AND ABANDONMENT	**$84,000**
Additional three years monitoring	**$21,000**
TOTAL ADDITIONAL REQUIREMENT	**$105,000**

3.8 Sediment/Surface Water

Doe Run has not included any additional cost estimates for surface water and sediment testing in the vicinity of the plant because an evaluation of sediments and surface water has been conducted in and around the vicinity of the Herculaneum Lead Smelter. Doe Run has conducted an extensive and complex study of the ecological risks associated with historical operations at the smelter. First, Doe

Run submitted a Natural Resource Damage Assessment (NRDA) sampling and analysis plan (ELM, 2003a). This was followed by an Ecological Risk Assessment (ERA) sampling and analysis plan (ELM 2003b). The most recent studies included a Characterization Investigation Report (Entrix – August 2007) and Baseline Problem Formulation Report (Entrix – October 2007). These analysis and studies included the following:

1) Surface water, sediment, and biological testing in Joachim Creek west, south, and east of the plant;

2) Surface water, sediment, and biological testing in the Central Seep;

3) Surface water, sediment, and biological testing in the West Transect;

4) Sediment and biological testing in the East Transect; and

5) Sediment and surface water testing in the Mississippi River east of the plant.

Attached as Appendix B is a figure highlighting all sampling locations as part of the ecological study. Doe Run feels that this extensive study and analysis of sediments, surface water, and biota of seeps, creeks, and rivers near the plant has satisfied any sediment and surface water sampling requirements such that no additional testing of these media will be necessary.

3.9 Plant Decontamination

Doe Run has included the costs of decontaminating the buildings and interiors that, based on knowledge of the processing operations, could have elevated levels of metals and that Doe Run, at the present time, could not potentially or does not plan to use as a part of its ongoing operations. For these cost assumptions, Doe Run has assumed that all equipment and the exterior and interior of the structures will be pressure washed as part of the plant decontamination process. Any material that cannot be removed by pressure washing will be removed with the use of a hydraulic hammer. WRS Compass Infrastructure and Environment has provided Doe Run with a cost estimate of $1,250,000 to perform the decontamination. The decontamination costs assumptions are provided in Appendix A.

The plant areas that are included in the estimated decontamination costs include the Sinter Building (including all equipment therein, including but not limited to the sinter machine, crushers, feeder and other associated equipment); the Storage Bins that are associated with the Sinter Building; the Blast Furnace Building (including, but not limited to, the dross plant, blast furnaces and ancillary equipment), #3 and #5 Baghouses that currently ventilate the sinter machine and blast furnaces, respectively; the Thaw House Building and associated equipment; and the Acid Plant (including, but not limited to, all structures, tanks and equipment).

Other buildings and areas of the Plant may or will be used by Doe Run after the sinter machine, blast furnace and acid plant operations cease. For example the Lead Storage Building, Refinery and Strip Mill Building will be used as part of the continuing casting and alloying operations. In addition, certain storage buildings, maintenance areas, WWT facilities, truck wash, laboratories etc. will be needed to support continued operations and are not included in this initial cost estimate.

The decontamination process will include an initial bulk solids collection via vacuum truck or bobcat, excavator with breaker and loader, or other necessary means. Materials collected will be transported to the slag storage pile south of the plant via vacuum truck or off road truck. Once bulk solids have been collected from the ground level and hauled to the storage pile, vacuuming of other collectible solids by vacuum truck will be completed beginning at the ceiling level and progressing down the walls and eventually the floors. Each vacuum truck will have two separate suction hoses in order to maximize production. Once this has been completed, pressure washing of the interior and exterior will begin. Pressure washing with laborers and man lifts will progress in the same manner as the solids collection (from ceiling down to floor). Any material that cannot be removed by a pressure washing will be removed with the use of a hydraulic hammer. All wash waters and collected waste will be directed to the Doe Run collection systems and transported to the onsite wastewater treatment plant. Upon final inspection, work will progress to the next area.

In addition to the decontamination costs, Doe Run has assumed that there will be costs associated with verification of proper decontamination procedures. For verification costs, Doe Run has assumed that one destructive core sample will be collected from the masonry material for every 1000 square feet of building material pressure washed. Doe Run will have the core tested for lead to determine that the decontamination is adequate. Doe Run has assumed approximately 1.6 million square feet of building material is in need of decontamination, which leads to a total of 1600 core samples total. At $20 per core sample, the sampling and analysis costs would be approximately $32,000.

3.10 Institutional Controls and Cap Maintenance

Doe Run has assumed that institutional controls will be instituted as part of any environmental cleanup. These controls may be a combination of land/groundwater use restrictions and a required engineered barrier inspection and maintenance program. Doe Run has assumed that the engineered controls will require a formal third party inspection by a Missouri registered professional engineer on an annual basis. These inspections will include an evaluation of the surface integrity of all "capped" areas and their ability to continue to isolate the underlying soils from human exposure and

precipitation. Doe Run has assumed that the engineer will prepare an engineering report, sealed, and submitted to the appropriate regulatory agency on an annual basis.

Doe Run has estimated that these annual inspections and reports will cost $5,000 per year. In the cost spreadsheet provided in Table 1, Doe Run has included costs for a 5-year inspection period. In addition to the third-party inspections, Doe Run has also assumed a $20,000 annual maintenance requirement for the vegetated and paved areas. This maintenance will include mowing the vegetated areas and removal of all new shrub growth to ensure the integrity of the soil/vegetative barriers. The maintenance will also include sealing any cracks or filling any potholes discovered within the pavement to ensure integrity of the cap. Doe Run anticipates it may take up to five years to establish a good vegetative cover material over two-thirds of the closed Smelter Facility area.

Doe Run has estimated that the preparation of the institutional control document along with the filing at the Jefferson County Recorder's Office will cost $2,000. Five years of inspection and reporting costs amount to $25,000, while five years of maintenance costs amount to $100,000. Upon the end of the five-year period after closure, the vegetative cover should be well established, the Smelter Facility should be repurposed, and new tenants will assume maintenance of their own areas of the repurposed plant.

4.0 Summary of Cost Estimates

The estimated costs for addressing the environmental issues at the Smelter Facility have been summarized in Table 1. These costs are expressed in year 2010 dollars, and contain separate columns for upfront implementation costs and annual operation and maintenance (O&M) costs. The costs related to the work in the five areas of the Smelter Facility including decontamination, a groundwater evaluation, and initiation and maintaining the institutional controls are estimated at $8,140,000.

5.0 References

Barr, 2004. *Engineering Evaluation/Cost Analysis Report, Herculaneum Smelter, Herculaneum, Missouri.* Prepared for The Doe Run Company, 2004.

Entrix, 2007a. *Characterization Area Investigation Report.* Prepared for the Doe Run Company, August 2007.

Entrix, 2007b. *Baseline Problem Formulation Report.* Prepared for the Doe Run Company, October 5, 2007.

Jacobs, 2002. *Field Sampling Plan, Other Areas Evaluation, Doe Run Corporation, Herculaneum, Missouri.* Prepared by Jacobs Engineering, May 2002.

USEPA, 2000. *Herculaneum Site, Administrative Order On Consent (AOC) Between The Doe Run Resources Corporation and the U.S. Environmental Protection Agency, Region VII,* 2000.

USEPA and USACE, 2000. *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study.* United States Environmental Protection Agency, Offiee of Emergency and Remedial Response and United States Army Corps of Engineers, Hazardous, Toxic, and Radioactive Waste Center of Expertise, EPA 540-R-00-002, July 2000.

Appendices

Tables

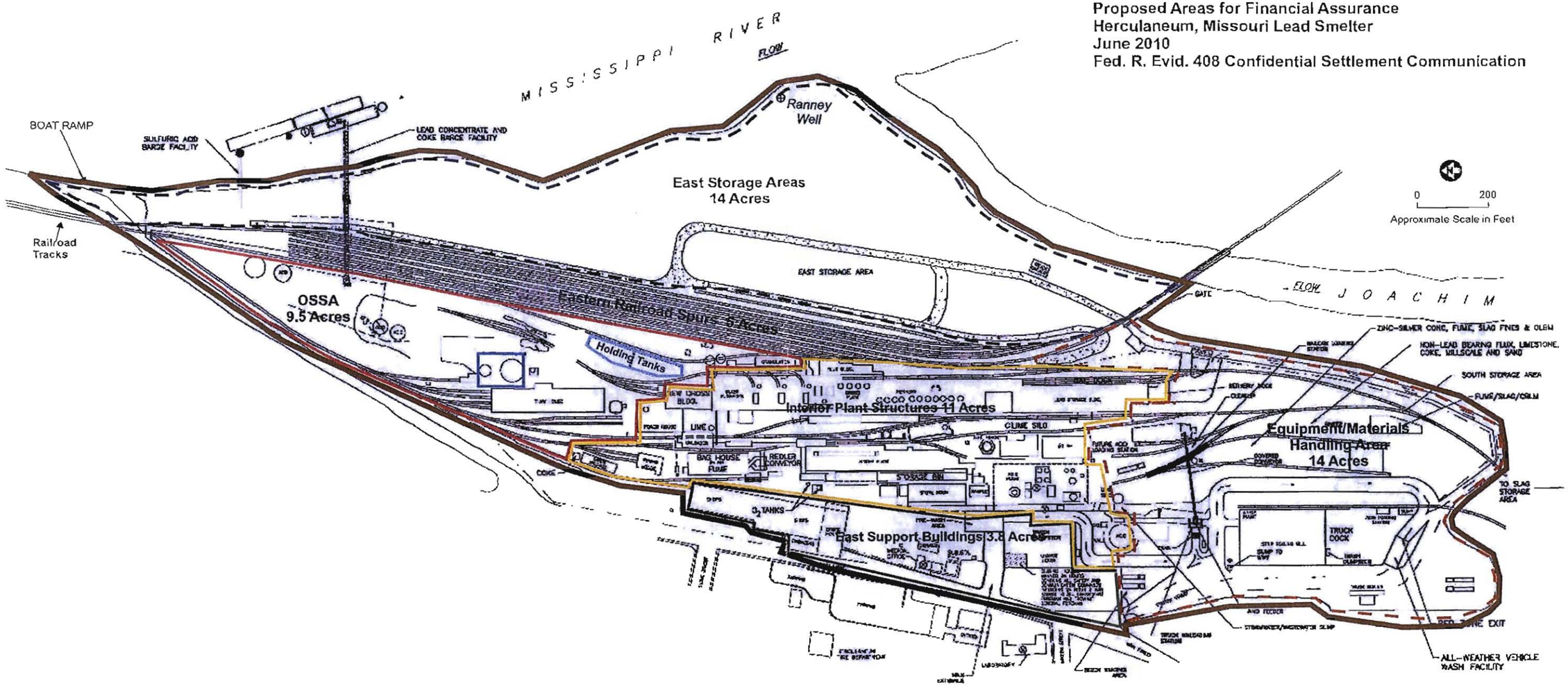
Table 1
Environmental Financial Assurance Cost Estimate
Jun-10

Doe Run Herculaneum Facility
Herculaneum, Missouri

		Estimated Cost in 2010 Dollars			
		ENVIRONMENTAL LIABILITY			2010 Value TOTAL ESTIMATED COST
ENVIRONMENTAL CLASSIFICATION	Closure Assumption	Implemenation Cost	O&M (Annual)	O&M (Total)	
Old Slag Storage Area (OSSA) (9 acres)	Soil Buffer (2/3) and Pavement (1/3)	$1,150,000			$1,150,000
Equip/Materials Handling Areas (14 acres)	Soil Buffer (2/3) and Pavement (1/3)	$1,770,000			$1,770,000
East Storage Areas (14 acres)	Soil Buffer 14 acres	$1,090,000			$1,090,000
Interior Plant Structures/Railroad Spurs (16 acres)	Soil Buffer (2/3) and Pavement (1/3)	$2,050,000			$2,050,000
East Support Buildings (3.8 acres)	Soil Buffer (2/3) and Pavement (1/3)	$540,000			$540,000
Groundwater	Initial groundwater study/3 years of monitoring/abandonment	$84,000	$7,000	$21,000	$105,000
Interior Plant Decontamination	Washdown of interior/exterior walls and equipment	$1,250,000			$1,250,000
Plant Decontamination Confirmation Sampling	Core testing every 1000 square feet for lead analysis	$32,000			$32,000
Institutional Controls & Maintenance	IC implementation, 5-year IM/reporting	$2,000	25,000	125,000	$152,000
Subtotals		$7,970,000	$32,000	$146,000	
	ESTIMATED SUBTOTAL 2010				$8,140,000
	ESTIMATED TOTAL (2010 Dollars)				$8,140,000

Figures

FIGURE 1
Proposed Areas for Financial Assurance
Herculaneum, Missouri Lead Smelter
June 2010
Fed. R. Evid. 408 Confidential Settlement Communication



- Old Slag Storage Area (OSSA)
- East Storage Areas
- Wastewater Treatment Plant and Holding Tanks
- Equipment/Materials Handling Area
- Interior Plant Structures
- East Support Buildings
- Boundary of Herculaneum Lead Smelter Facility

Appendix A

Detailed Environmental Remediation Cost Estimates

Old Slag Storage Area Remedial Summary Table

Cost Reserve Estimates 9 acres
Doe Run Herculaneum Smelter
Herculaneum, Missouri

Closure Assumption	Estimated Capital & Eng. Cost	Estimated Non-Contractor Cost	Total Estimate	Notes
OSSA Soil Cover (2/3) & Pavement (1/3)	$ 1,040,000	$ 110,000	$ 1,150,000	

Old Slag Storage Area
Non-Contractor Costs for Closure Assumption
Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Field Sampling Plan	1	LS	$10,000	$10,000	Near surface & subsurface sampling; 1000 sf grid
Field Sampling	1	LS	$24,000	$24,000	
Laboratory Analyses All Samples	800	LS	$45	$36,000	analyzed for zinc, lead and cadmium
Laboratory Analyses 10% samples	80	LS	$50	$4,000	other 6 metals and pH
HASP	1	LS	$2,000	$2,000	
QAPP	1	LS	$3,000	$3,000	
Sampling Report	1	LS	$10,000	$10,000	
Subtotal Non-Contractor				$89,000	
Contingency[1] - 25%				$22,250	
Estimated Non-Contractor Total[2]				$110,000	

Notes:

1. *Contingency* represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Old Slag Storage Area
Clean Fill Buffer 23
Construction & Engineering Cost Recovery Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$25,500	$25,500	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Clean fill	9,700	CY	$23	$223,100	6 acres, 1 ft thick; includes material, placement, & rough grading
Grading	6	ACRE	$1,500	$9,000	6 acres fine grading
Site Restoration	6	ACRE	$2,150	$12,900	Establish vegetation
Subtotal Construction				$280,500	
Contingency[1] - 25%				$70,125	
Estimated Construction Total				$350,000	
Estimated Engineering Cost (10% of Construction Costs)				$35,000	Eng. during remedy including construction observation and reporting
Estimated Construction & Engineering Total				$380,000	

Notes:
1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Old Slag Storage Area
Pavement 1/3
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$45,010	$45,010	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Grading	3	ACRE	$1,500	$4,500	3 acres fine grading
Pavement	14,520	SY	$30	$435,600	Includes material, equipment, & labor
Subtotal Construction				$495,110	
Contingency[1] - 25%				$123,778	
Estimated Construction Total				$620,000	
Estimated Engineering Cost (5% of Construction Costs)				$31,000	Used 5% due to high cost of large pavement area; Eng. during remedy including construction observation and reporting
Estimated Construction & Engineering Total				$650,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Equipment / Materials Handling Area Remedial Summary Table

Cost Reserve Estimates 14 acres
Doe Run Herculaneum
Herculaneum, Missouri

Closure Assumption	Estimated Capital & Eng. Cost	Estimated Non-Contractor Cost	Total Estimate	Notes
Equipment / Materials Handling Area Soil Cover (2/3) & Pavement (1/3)	$ 1,560,000	$ 210,000	$ 1,770,000	

Equipment / Materials Handling Area
Non-Contractor Costs for Closure Assumption
Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Field Sampling Plan	1	LS	$10,000	$10,000	Near surface & subsurface sampling; 1000 sf grid
Field Sampling	1	LS	$90,000	$90,000	
Laboratory Analyses All samples	1,220	EA	$45	$54,900	analyzed for zinc, lead, and cadmium
Laboratory Analyses 10% samples	122	EA	$50	$6,100	other 6 metals and pH
Sampling Report	1	LS	$10,000	$10,000	
Subtotal Non-Contractor				$171,000	
Contingency[1] - 25%				$42,750	
Estimated Non-Contractor Total				$210,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Equipment / Materials Handling Area
Pavement 1/3
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$67,015	$67,015	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Grading	4.5	ACRE	$1,500	$6,750	Fine grading
Pavement	21,780	SY	$30	$653,400	Includes material, equipment, & labor
Subtotal Construction				$737,165	
Contingency[1] - 25%				$184,291	
Estimated Construction Total				$920,000	
Estimated Engineering Cost (5% of Construction Costs)				$46,000	Used 5% due to high cost of large pavement area; Eng. during remedy including construction obs
Estimated Construction & Engineering Total				$970,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Equipment / Materials Handling Area
Clean Fill Buffer 2/3
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$39,287	$39,287	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Clean fill	15,130	CY	$23	$347,990	1 ft thick; includes material, placement, & rough grading
Grading	9.5	ACRE	$1,500	$14,250	Fine grading
Site Restoration	9.5	ACRE	$2,150	$20,425	Establish vegetation
Subtotal Construction				$431,952	
Contingency[1] – 25%				$107,988	
Estimated Construction Total				$540,000	
Estimated Engineering Cost (10% of Construction Costs)				$54,000	Eng. during remedy including construction observation and reporting
Estimated Construction & Engineering Total				$590,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of this project and the uncertainty in the amount or type of work that will ultimately be required

East Storage Area Remedial Summary Table

Cost Reserve Estimates 14 acres
Doe Run Herculaneum
Herculaneum, Missouri

Closure Assumption	Estimated Capital & Eng. Cost	Estimated Non-Contractor Cost	Total Estimate	Notes
East Dome Storage Area Clean Fill Buffer	$ 880,000	$ 210,000	$ 1,090,000	

East Storage Area
Non-Contractor Costs for Closure Assumption
Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Field Sampling Plan	1	LS	$10,000	$10,000	Near surface & subsurface sampling; 1000 sf grid
Field Sampling	1	LS	$90,000	$90,000	
Laboratory Analyses All Samples	1,220	EA	$45	$54,900	analyzed for zinc, lead, cadmium,
Laboratory Analyses 10% Samples	122	EA	$50	$6,100	Other 6 metals and pH
Sampling Report	1	LS	$10,000	$10,000	
Subtotal Non-Contractor				$171,000	
Contingency[1] - 25%				$42,750	
Estimated Non-Contractor Total				$210,000	

Notes:

1. *Contingency* represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

East Storage Area
Clean Fill Berm
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$58,090	$58,090	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Clean fill	22,800	CY	$23	$219,800	1 ft thick; includes material, placement, & rough grading
Grading	14.0	ACRE	$1,500	$21,000	Fine grading
Site Restoration	14.0	ACRE	$2,150	$30,100	Establish vegetation
Subtotal Construction				$338,990	
Contingency[1] - 25%				$199,748	
Estimated Construction Total				$200,000	
Estimated Engineering Cost (10% of Construction Costs)				$60,000	Eng. during remedy including construction observation and reporting
Estimated Construction & Engineering Total				$260,000	

Notes:
1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Interior Plant Structures/Railroad Spurs - Remedial Summary Table

Cost Reserve Estimates - 2010 Dollars 16 acres
Doe Run Herculaneum
Herculaneum, Missouri

Closure Assumption	Estimated Capital & Eng. Cost	Estimated Non-Contractor Cost	Total Estimate	Notes
Interior Plant Structures-Soil Cover (2/3) & Pavement (1/3)	$ 1,800,000	$ 250,000	$ 2,050,000	

Interior Plant Structures/Railroad Spurs
Non-Contractor Costs for Closure Assumption
Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Field Sampling Plan	1	LS	$10,000	$10,000	Near surface & subsurface sampling; 1000 sf grid
Field Sampling	1	LS	$100,000	$100,000	
Laboratory Analyses All Samples	1,560	LS	$45	$70,200	analyzed for lead, zinc and cadmium
Laboratory Analyses 10% Samples	156	LS	$50	$7,800	Other 6 metals and pH
Sampling Report	1	LS	$10,000	$10,000	
Subtotal Non-Contractor				$198,000	
Contingency[1] - 25%				$49,500	
Estimated Non-Contractor Total				$250,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Interior Plant Structures/Railroad Spurs
Clean Fill Buffer 2B
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$44,696	$44,696	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Clean fill	17,300	CY	$23	$397,900	10.7 acres, 1 ft thick; includes material, placement, & rough grading
Grading	10.7	ACRE	$1,500	$16,050	10.7 acres fine grading
Site Restoration	10.7	ACRE	$2,150	$23,005	Establish vegetation
Subtotal Construction				$491,651	
Contingency[1] - 25%				$122,913	
Estimated Construction Total				$610,000	
Estimated Engineering Cost (10% of Construction Costs)				$61,000	Eng. during remedy including construction observation and reporting
Estimated Construction & Engineering Total				$670,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Interior Plant Structures/Railroad Spurs
Pavement 1/3
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$78,751	$78,751	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Grading	5.3	ACRE	$1,500	$7,950	5.3 acres fine grading
Pavement	25,852	SY	$30	$769,500	Includes material, equipment, & labor
Subtotal Construction				$866,251	
Contingency[1] - 25%				$216,585	
Estimated Construction Total				$1,080,000	
Estimated Engineering Cost (5% of Construction Costs)				$54,000	Used 5% due to high cost of large pavement areas; Eng. during remedy including construction cos
Estimated Construction & Engineering Total				$1,130,000	

Abstract

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

East Support Buildings Remedial Summary Table

Cost Reserve Estimates
Doe Run Herculaneum
Herculaneum, Missouri

Closure Assumption	Estimated Capital & Eng. Cost	Estimated Non-Contractor Cost	Total Estimate	Notes
East Support Buildings Soil Cover (2/3) & Pavement (1/3)	$ 460,000	$ 80,000	$ 540,000	

East Support Buildings
Non-Contractor Costs for Closure Assumption
Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Field Sampling Plan	1	LS	$10,000	$10,000	Near surface & subsurface sampling; 1000 sf grid
Field Sampling	1	LS	$20,000	$20,000	
Laboratory Analyses All Samples	400	EA	$45	$18,000	analysis for zinc, lead, and cadmium
Laboratory Analyses 10 % Samples	40	EA	$50	$2,000	analysis for other 6 metals and pH
Sampling Report	1	LS	$10,000	$10,000	
Subtotal Non-Contractor				$60,000	
Contingency[1] - 25%				$15,000	
Estimated Non-Contractor Total				$80,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

Exit Support Buildings
Clean Fill Buffer 20
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$11,355	$11,355	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Clean fill	4,100	CY	$23	$94,300	1 ft thick; includes material, placement, & rough grading
Grading	2.5	ACRE	$1,500	$3,800	Fine grading
Site Restoration	2.5	ACRE	$2,150	$5,447	Establish vegetation
Subtotal Construction				$124,991	
Contingency[1] - 25%				$31,225	
Estimated Construction Total				$156,000	
Estimated Engineering Cost (10% of Construction Costs)				$16,000	Eng. during remedy including construction observation and reporting
Estimated Construction & Engineering Total				$160,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required

East Support Buildings
Pavement 1/3
Construction & Engineering Cost Reserve Estimate
Doe Run Herculaneum
Herculaneum, Missouri

Item	Estimated Quantity	Unit	Est. Unit Cost	Subtotal	Assumptions
Mobilization/Demobilization	1	LS	$19,582	$19,582	10% of estimated construction costs
Site Preparation	1	LS	$10,000	$10,000	Allowance
Grading	1.2	ACRE	$1,500	$1,900	Fine grading
Pavement	6,131	SY	$30	$183,920	Includes material, equipment, & labor
Subtotal Construction				$215,402	
Contingency[1] - 25%				$53,851	
Estimated Construction Total				$270,000	
Estimated Engineering Cost (5% of Construction Costs)				$13,500	Used 5% due to high cost of large pavement area; Eng. during remedy including construction obs
Estimated Construction & Engineering Total				$280,000	

Notes:

1. Contingency represents the cost of items not estimated in detail, but known to be part of the project and the uncertainty in the amount or type of work that will ultimately be required.

WRSCOMPASS

954 West Washington Blvd
5th Floor
Chicago, IL 60607
Office: (317) 334-0949
Fax: (317) 334-0726

June 22, 2010

Doe Run Company
Attention Mr. Aaron Miller

RE: Herculaneum Smelter Decontamination Estimate

Building Areas (Each area includes all floors, walls, ceilings and all equipment):

Sinter Building (includes the sinter machine and related equipment)	1,216,000 SqFt
Storage Bins (associated with the sinter operations)	64,800 SqFt
Blast Furnace Area (includes the furnaces and dross plant)	45,000 SqFt
Acid Plant	32,000 SqFt
Bag Houses (for the sinter and blast furnace buildings)	20,000 SqFt
Thaw Building	67,200 SqFt

Equipment:
(4) 120' Manlifts
(3) Vac Trucks
(1) Bobcat
(1) Excavator with hydraulic hammer
(1) Wheel Loader
(1) 25 Ton Off Road Truck
(5) 5,000 or 10,000 PSI pressure washers
Miscellaneous tools & equipment

Personnel:
(8) Laborers
(3) Vac Truck Operators
(3) Laborers for Vac Truck Assistance
(3) Heavy Equipment Operators
Foreman
Supervisor
* All Personnel will be outfitted in Level C PPE at all times.

Operations:

The Herculaneum smelter cleaning will be preceded by an initial inspection/recon of all areas to be cleaned. Determinations of actual cleaning requirements as well as equipment & labor requirements will be made then.

General Work Plan for all areas to be cleaned:

Initial bulk solids collection via vac trucks, bobcat, excavator with breaker and loader or other necessary means. Materials collected during this stage of work will be transported to slag storage pile south of the plant via vac truck or off road truck. Once bulk solids have been collected from the ground level and hauled to the slag storage pile, vacuuming of other collectible solids via vac truck will be completed beginning at the ceiling level and progressing down the walls and eventually the floors. Vac trucks will be outfitted with 2 separate suction hoses in order to maximize production. Once vacuuming and removal of collectible solids has been completed, pressure washing will begin. Pressure washing will be completed by laborers in man lifts with pressure washers and will progress in the same manner as the solids collection (from ceiling down to floor). All wash waters and collected liquid waste will be directed to Doe Run collection systems and transported to the on site waste water treatment plant. Upon final inspection, work will progress to the next area.

Estimated durations:

Sinter Building.....3 Weeks
Storage Bins.....2 Weeks
Blast Furnace Area.....4 Weeks
Acid Plant.....2 Weeks
Bag Houses.....2 Weeks
Thaw Building.....2 Weeks

Estimated cost to perform the work described above (see also attachment).....$ 1,250,000.00

Please let me know if you need additional information.

Sincerely,

Scott Peterson
Attachment
CC: Melvin Turner
JB Carter

Herky Smelter Breakdown

Labor	($) / HR
Laborer	$ 33.50
Laborer Overtime	$ 50.25
Operator	$ 44.75
Operator Overtime	$ 67.25
Truck Driver	$ 34.00
Truck Driver Overtime	$ 51.00
Project Assistant	$ 36.00
Foreman/Site Manager	$ 66.00
Superintendent	$ 66.00
Project Manager	$ 80.00

Equipment	($) / HR
Manned Vac Trucks	$ 205.00
Manlifts	$ 50.00
25 Ton Off Road	$ 90.00
320 Excavator with Hammer	$ 120.00
Wheel Loader	$ 50.00
5000 PSI Washer	$ 10.00
Bobcat	$ 31.00
Trailer	$ 7.50
Pick Up Trucks	$ 12.50

LABOR:	$ 218,376.00
PER DIEM:	$ 80,500.00
EQUIPMENT:	$ 699,050.00
HEALTH & SAFETY:	$ 72,701.50
MANAGEMENT/OVERHEAD:	$ 96,000.00
MOB/DEMOB/MISCELLANEOUS:	$ 83,370.50
GRAND TOTAL:	$ 1,250,000.00

Appendix B

Ecological Risk Assessment Study
Sample Collection Locations

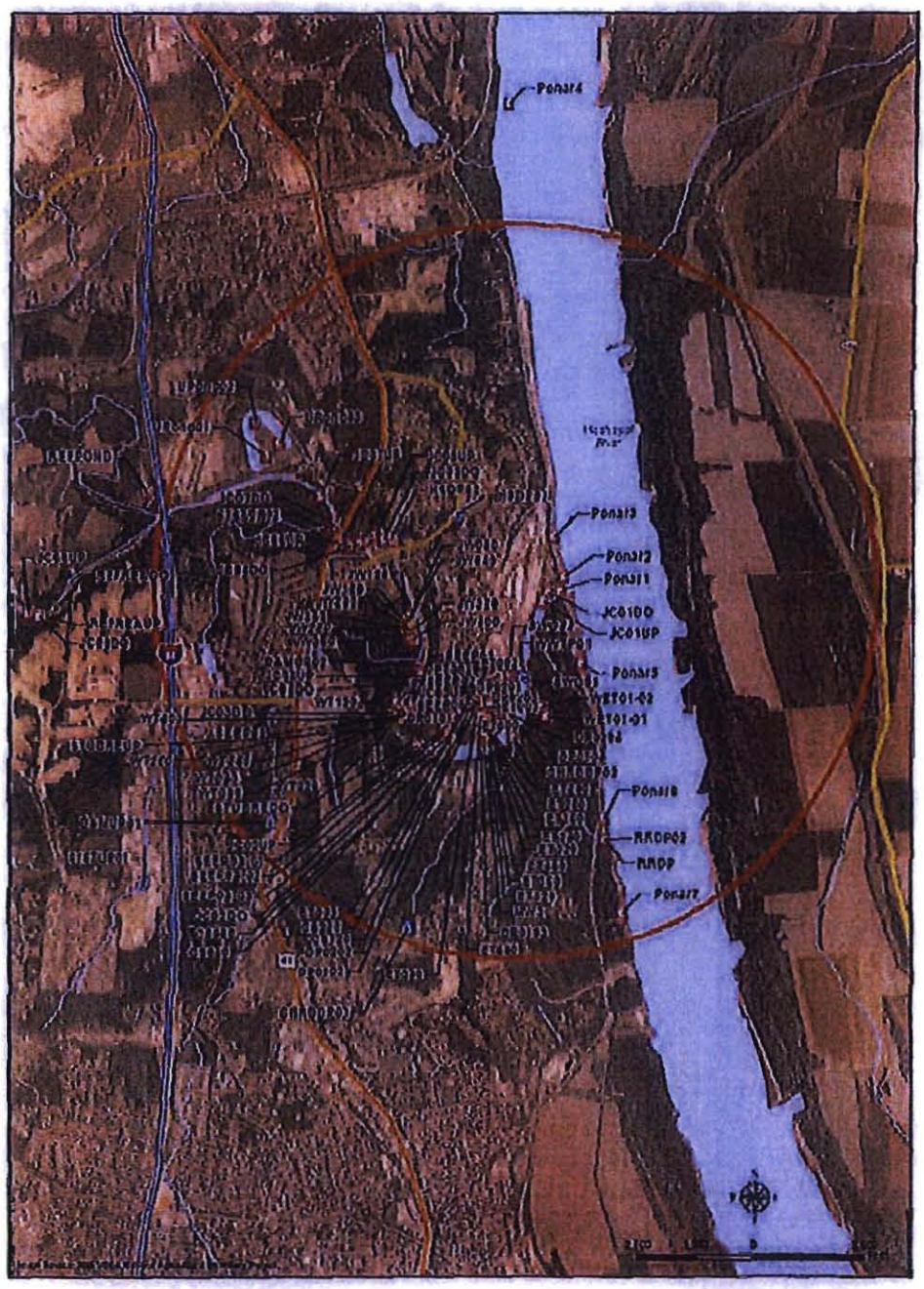


Figure 1-2. Characterization Area for the Herculaneum Smelter facility.