

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

UNITED STATES OF AMERICA)

Plaintiff,)

v.)

CIVIL ACTION NO.)

SHIELDALLOY METALLURGICAL)
CORPORATION,)

Defendant.)

CONSENT DECREE

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I. BACKGROUND

A. The United States of America (“United States”), on behalf of the Administrator of the United States Environmental Protection Agency (“EPA”), filed a Complaint in this matter against Shieldalloy Metallurgical Corporation (“SMC”) pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), 42 U.S.C. §§ 9606 and 9607.

B. The United States in its Complaint seeks, *inter alia*: (1) reimbursement of costs incurred by EPA and the Department of Justice (“DOJ”) for response actions at the Shieldalloy Metallurgical Corporation Superfund Site in Newfield, New Jersey (“Site”), together with accrued interest; and (2) performance of response actions by the defendant at the Site consistent with the National Contingency Plan, 40 C.F.R. Part 300 (“NCP”).

C. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA formally notified the State of New Jersey (the “State”) on June 3, 2015 (as to Operable Unit 2) and on September 30, 2015 (as to Operable Unit 1), of negotiations with a potentially responsible party (“PRP”) regarding the implementation of the remedial actions for these respective Operable Units for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

D. Until 2010, the NJDEP held lead agency oversight responsibility for the Site, pursuant to the terms and conditions of a February 1, 2006 Administrative Consent Order (“2006 ACO”) among the NJDEP, SMC and TRC, as well as prior ACOs between the NJDEP and SMC alone. By letter dated September 8, 2008, EPA advised SMC that it was taking over from the NJDEP lead agency responsibility for the Site under CERCLA. This transfer of lead agency responsibility was formalized in an Administrative Settlement Agreement and Order on Consent for Remedial Investigation/ Feasibility Study and Remedial Design among EPA, SMC and TRC dated April 28, 2010 (“2010 Administrative Settlement Agreement”).

E. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA formally notified the National Oceanic and Atmospheric Administration (“NOAA”) and the Department of the Interior (“DOI”) on June 3, 2015, and again on January 21, 2016, of negotiations with the PRP regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

F. The Settling Party and TRC entered into a contract effective January 11, 2006 by which TRC agreed to assume cleanup liability held by the Settling Party with respect to the Site subject to certain exceptions and exclusions. Accordingly, while TRC is not a party to this Consent Decree, the United States recognizes that it is the Settling Party’s intent that TRC will conduct and carry out certain actions pursuant to this Consent Decree.

G. The Settling Party admits no liability to Plaintiff arising out of the transactions or occurrences alleged in the Complaint, nor does it acknowledge that the release or threatened

release of hazardous substances at or from the Site constitutes an imminent and substantial endangerment to the public health or welfare or the environment.

H. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List (“NPL”), set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 21, 1984, 40 Fed. Reg. 3070.

I. In response to a release or a substantial threat of a release of hazardous substances at or from the Site, EPA commenced a Remedial Investigation and Feasibility Study (“RI/FS”) for the Site pursuant to 40 C.F.R. § 300.430.

J. Operable Unit 1 (“OU1”) at the Site concerns the remediation of non-perchlorate contaminated groundwater. EPA completed the OU1 Supplemental Remedial Investigation (“RI”) Report in March 2014, and EPA completed the OU1 Focused Feasibility Study (“FS”) Report in March 2015.

K. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the OU1 FS and of the proposed plan for OU1 remedial action on July 30, 2015, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which EPA Region 2 based the selection of the response action.

L. The decision by EPA on the remedial action to be implemented at the Site for OU1 is embodied in a final Record of Decision Amendment (“OU1 ROD”), executed on September 30, 2015, as to which the State has given its concurrence. The OU1 ROD includes a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

M. Operable Unit 2 (“OU2”) at the Site concerns the remediation of non-perchlorate soils contamination and certain sediments. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS for OU2 and of the proposed plan for remedial action for OU2 on June 27, 2014, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which EPA Region 2 based the selection of the response action.

N. The decision by EPA on the remedial action to be implemented at the Site for OU2 is embodied in a final OU2 ROD, executed on September 25, 2014, as to which the State has given its concurrence. The OU2 ROD includes a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

O. EPA anticipates that there will be an OU3 ROD addressing perchlorate contamination at the Site. Pursuant to the 2010 Administrative Settlement Agreement, the

Settling Party is solely responsible for conducting a remedial investigation and feasibility study with respect to OU3. OU3 is not the subject of this Consent Decree.

P. EPA, the Settling Party, and TRC entered into the 2015 Administrative Settlement Agreement pursuant to which the Settling Party and TRC agreed to implement the OU2 RD pending the negotiation and execution of this Consent Decree.

Q. Based on the information presently available to EPA, EPA believes that the Work will be properly and promptly conducted by the Settling Party if conducted in accordance with this Consent Decree and its appendices.

R. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the remedy set forth in the OU1 ROD and the OU2 ROD and the Work to be performed by the Settling Party shall constitute a response action taken or ordered by the President for which judicial review shall be limited to the administrative record.

S. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1367, and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over the Settling Party. Solely for the purposes of this Consent Decree and the underlying complaints, the Settling Party waives all objections and defenses that it may have to jurisdiction of the Court or to venue in this District. The Settling Party shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

2. This Consent Decree is binding upon the United States and upon the Settling Party and each of their respective successors, and assigns. Any change in ownership or corporate or other legal status of the Settling Party including, but not limited to, any transfer of assets or real or personal property, shall in no way alter the Settling Party's responsibilities under this Consent Decree.

3. The Settling Party shall provide a copy of this Consent Decree to each contractor hired to perform the Work and to each person representing the Settling Party with respect to the Site or the Work, including but not limited to TRC, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. The Settling Party or its contractors shall provide written notice of the Consent Decree to all

subcontractors hired to perform any portion of the Work. The Settling Party shall nonetheless be responsible for ensuring that the contractors and subcontractors perform the Work in accordance with the terms of this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor, including TRC, shall be deemed to be in a contractual relationship with the Settling Party within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

4. Unless otherwise expressly provided in this Consent Decree, terms used in this Consent Decree that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or its appendices, the following definitions shall apply solely for purposes of this Consent Decree:

“2010 Administrative Settlement Agreement” shall mean the Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study and Remedial Design, Index Number 02-2010-2017, entered into on April 28, 2010.

“2015 Administrative Settlement Agreement” shall mean the Administrative Settlement Agreement and Order on Consent for Remedial Design, Operable Unit 2, Index Number CERCLA-02-2014-2029 entered into on March 10, 2015.

“Affected Property” shall mean all real property at the Site and any other real property where EPA determines, at any time, that access, land, water, or other resource use restrictions, and/or Institutional Controls are needed to implement the Remedial Action.

“CERCLA” shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675.

“Consent Decree” shall mean this consent decree and all appendices attached hereto (listed in Section XXII). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

“Day” or “day” shall mean a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the close of business of the next working day.

“DOJ” shall mean the United States Department of Justice and its successor departments, agencies, or instrumentalities.

“Eastern Storage Area” shall mean a portion of the SMC Facility depicted on the Map attached as Appendix D. The Eastern Storage Area is that area of the Site where the Settling Party will cap 1.3 acres of soil contaminated by chromium and vanadium.

“Effective Date” shall mean the date upon which the approval of this Consent Decree is recorded on the Court’s docket.

“EPA” shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

“EPA Hazardous Substance Superfund” shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

“Future Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing deliverables submitted pursuant to this Consent Decree, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to ¶ 11 (Emergencies and Releases), ¶ 12 (Community Involvement) (including the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e)), ¶ 25 (Access to Financial Assurance), Section VII (Remedy Review), Section VIII (Property Requirements) (including the cost of attorney time and any monies paid to secure or enforce access or land, water, or other resource use restrictions and/or to secure, implement, monitor, maintain, or enforce Institutional Controls including the amount of just compensation), and Section XIII (Dispute Resolution), and all litigation costs. Future Response Costs shall also include all Interim Response Costs, all Interest on those Past Response Costs the Settling Party has agreed to pay under this Consent Decree that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from August 1, 2016 through the Effective Date, and Agency for Toxic Substances and Disease Registry (ATSDR) costs regarding the Site.

“Hudson Branch” shall mean the stream and its tributary that flow through the southern portion of the Site as depicted on the map attached as Appendix D.

“Institutional Controls” or “ICs” shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, or other resource use to minimize the potential for human exposure to Waste Material at or in connection with the Site; (b) limit land, water, or other resource use to implement, ensure non-interference with, or ensure the protectiveness of the RA; and/or (c) provide information intended to modify or guide human behavior at or in connection with the Site.

“Interest” shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Rates are available online at <http://www2.epa.gov/superfund/superfund-interest-rates>.

“Interim Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, (a) paid by the United States in connection with the Site from August 1, 2016 through the Effective Date, or (b) incurred prior to the Effective Date but paid after that date, *provided however*, that such Interim Response Costs shall not include costs incurred in connection with OU3.

“National Contingency Plan” or “NCP” shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

“Natural Resource Damages” means damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such damages, as provided in Section 107(a)(4)(C) of CERCLA, 42 U.S.C. § 9607(a)(4)(C),

“Natural Resources” means “natural resources” as that term is defined in Section 101(16) of CERCLA, 42 U.S.C. § 9601(16).

“NJDEP” shall mean the New Jersey Department of Environmental Protection and any successor departments or agencies of the State.

“NR Trustee(s)” means the designated federal officials who may act on behalf of the public as trustees for the Natural Resources regarding the Site, namely the National Oceanic and Atmospheric Administration and the Department of the Interior represented by the Fish and Wildlife Service as the federal Trustees for Natural Resources regarding the Site.

“Non-Settling Owner” shall mean any person, other than the Settling Party, that owns or controls any Affected Property. The clause “Non-Settling Owner’s Affected Property” means Affected Property owned or controlled by a Non-Settling Owner.

“Operation and Maintenance” or “O&M” shall mean all activities required to operate, maintain, and monitor the effectiveness of the RA as specified in the SOW or any EPA-approved O&M Plan.

“OU1 ROD” shall mean the EPA Record of Decision Amendment relating to Operable Unit 1 at the Site signed on September 30, 2015, by the Regional Administrator, EPA Region 2, or her delegate, and all attachments thereto. The OUI ROD is attached as Appendix A.

“OU2 ROD” shall mean the EPA Record of Decision relating to Operable Unit 2 at the Site signed on September 25, 2014 by the Regional Administrator, EPA Region 2, or her delegate, and all attachments thereto. The OU2 ROD is also attached in Appendix A.

“Paragraph” or “¶” shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper or lower case letter.

“Parties” shall mean the United States and SMC.

“Past Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through July 31, 2016, plus Interest on all such costs that has accrued pursuant to 42 U.S.C. § 9607(a) through such date, *provided, however*, that “Past Response Costs” shall not include any response costs which the Settling Party is obligated to pay, and those costs that the Settling Party, or TRC, on behalf of the Settling Party, in fact has paid, pursuant to the terms of the 2010 Administrative Settlement Agreement and the 2015 Administrative Settlement Agreement.

“Performance Standards” or “PS” shall mean the cleanup levels and other measures of achievement of the remedial action objectives, as set forth in the OU1 ROD or OU2 ROD, whichever is applicable.

“Plaintiff” shall mean the United States.

“Proprietary Controls” shall mean easements or covenants running with the land that (a) limit land, water, or other resource use and/or provide access rights and (b) are created pursuant to common law or statutory law by an instrument that is recorded in the appropriate land records office.

“RCRA” shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992 (also known as the Resource Conservation and Recovery Act).

“Remedial Action” or “RA” shall mean the remedial actions selected in the OU1 ROD and OU2 ROD.

“Remedial Design” or “RD” shall mean those activities to be undertaken by the Settling Party to develop final plans and specifications for the RA as stated in the SOW.

“Section” shall mean a portion of this Consent Decree identified by a Roman numeral.

“Settling Party” shall mean SMC.

“Shieldalloy Metallurgical Corporation Superfund Site Special Account” shall mean the special account, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

“Shieldalloy Metallurgical Corporation Superfund Site Future Response Costs Special Account” shall mean the special account, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3).

“Site” shall mean the Shieldalloy Metallurgical Corporation Superfund Site, located in the Borough of Newfield, Gloucester County, New Jersey and the City of Vineland, Cumberland County, New Jersey consisting of approximately 87.5 acres, as described in the OU1 and OU2 RODs and as depicted generally on the map attached as Appendix C. The Site encompasses the SMC Facility and a portion of the Hudson Branch.

“SMC” shall mean Shieldalloy Metallurgical Corporation.

“SMC Facility” shall mean that portion of the Site consisting of approximately 67.5 acres located at 35 South West Boulevard, in the Borough of Newfield, Gloucester County, New Jersey and the City of Vineland, Cumberland County, New Jersey. The SMC Facility is depicted on the map attached as Appendix D.

“State” shall mean the State of New Jersey.

“Statement of Work” or “SOW” shall mean the document describing the activities for OU1 and OU2 that the Settling Party must perform to implement the RD, the RA, and O&M regarding the Site. The Statement of Work for OU1 and OU2 is attached as Appendix B.

“Supervising Contractor” shall mean the principal contractor retained by the Settling Party to supervise and direct the implementation of the Work under this Consent Decree.

“Transfer” shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

“TRC” shall mean, collectively, TRC Companies, Inc. and TRC Environmental Corporation, both Delaware corporations, with their principal office located at 21 Griffin Road North, Windsor, Connecticut 06095. TRC Environmental Corporation is a wholly-owned subsidiary of TRC Companies, Inc.

“United States” shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

“Waste Material” shall mean (1) any “hazardous substance” under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

“Work” shall mean all activities and obligations that the Settling Party is required to perform under this Consent Decree, except the activities required under Section XIX (Retention of Records).

V. GENERAL PROVISIONS

5. **Objectives of the Parties.** The objectives of the Parties in entering into this Consent Decree are to protect public health or welfare or the environment by the implementation of response actions at the Site by the Settling Party, to pay response costs of the Plaintiff, and to resolve the claims of Plaintiff against the Settling Party as provided in this Consent Decree.

6. **Commitments by the Settling Party.** The Settling Party shall finance and perform the Work in accordance with this Consent Decree, the OU1 ROD and the OU2 ROD, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth in this Consent Decree or developed by the Settling Party and approved by EPA pursuant to this Consent Decree. The Settling Party shall pay the United States for Past Response Costs and Future Response Costs as provided in this Consent Decree.

7. **Compliance with Applicable Law.** Nothing in this Consent Decree limits the Settling Party’s obligations to comply with the requirements of all applicable federal and state laws and regulations. The Settling Party must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the OU1 ROD and the OU2 ROD and the SOW. The activities conducted pursuant to this Consent Decree, if

approved by EPA, shall be deemed to be consistent with the NCP as provided in Section 300.700(c)(3)(ii) of the NCP.

8. Permits.

a. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-site requires a federal, state, or local permit or approval, the Settling Party shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. The Settling Party may seek relief under the provisions of Section XII (Force Majeure) for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval referenced in ¶ 8.a and required for the Work, provided that the Settling Party has submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

c. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

VI. PERFORMANCE OF THE WORK

9. Coordination and Supervision.

a. Project Coordinators.

(1) The Settling Party's Project Coordinator must have sufficient technical expertise to coordinate the Work. The Settling Party's Project Coordinator may not be an attorney representing the Settling Party in this matter and may not act as the Supervising Contractor. The Settling Party's Project Coordinator may assign other representatives, including other contractors, to assist in coordinating the Work.

(2) EPA shall designate and notify the Settling Party of EPA's Project Coordinator and Alternate Project Coordinator. EPA may designate other representatives, which may include its employees, contractors and/or consultants, to oversee the Work. EPA's Project Coordinator/Alternate Project Coordinator will have the same authority as a remedial project manager and/or an on-scene coordinator, as described in the NCP. This includes the authority to halt the Work and/or to conduct or direct any necessary response action when he or she determines that conditions at the Site constitute an emergency or may present an immediate threat to public health or welfare or the environment due to a release or threatened release of Waste Material.

(3) The Settling Party's Project Coordinator shall meet regularly with EPA's Project Coordinator as directed by EPA.

b. **Supervising Contractor.** The Settling Party's proposed Supervising Contractor must have sufficient technical expertise to supervise the Work and a quality assurance system that complies with ANSI/ASQC E4-2004, Quality Systems for Environmental Data and Technology Programs: Requirements with Guidance for Use (American National Standard).

c. **Procedures for Disapproval/Notice to Proceed.**

(1) Except as otherwise provided in ¶ 9.c(4) below, the Settling Party shall designate, and notify EPA, within 10 days after the Effective Date, of the names, contact information, and qualifications of the Settling Party's proposed Project Coordinator and Supervising Contractor.

(2) Except as otherwise provided in ¶ 9.c(4) below, EPA, after a reasonable opportunity for review and comment by the State, shall issue notices of disapproval and/or authorizations to proceed regarding the proposed Project Coordinator and Supervising Contractor, as applicable. If EPA issues a notice of disapproval, the Settling Party shall, within 30 days, submit to EPA a list of supplemental proposed Project Coordinators and/or Supervising Contractors, as applicable, including a description of the qualifications of each. EPA shall issue a notice of disapproval or authorization to proceed regarding each supplemental proposed coordinator and/or contractor. The Settling Party may select any coordinator/contractor covered by an authorization to proceed and shall, within 21 days, notify EPA of the Settling Party's selection.

(3) The Settling Party may change its Project Coordinator and/or Supervising Contractor, as applicable, by following the procedures of ¶¶ 9.c(1) and 9.c(2).

(4) Notwithstanding the procedures of ¶¶ 9.c(1) through 9.c(3), the Settling Party has proposed, and EPA has authorized the Settling Party to proceed, regarding the following Project Coordinator and Supervising Contractor: TRC is the Supervising Contractor and TRC's designee and employee, Patrick Hansen, P.E. is the Project Coordinator.

10. **Performance of Work in Accordance with SOW.** The Settling Party shall (a) perform the RA; and (b) operate, maintain, and monitor the effectiveness of the RA; all in accordance with the SOW and all EPA-approved, conditionally-approved, or modified deliverables as required by the SOW. All deliverables required to be submitted for approval under the Consent Decree or SOW shall be subject to approval by EPA in accordance with ¶ 5.6 (Approval of Deliverables) of the SOW.

11. **Emergencies and Releases.** The Settling Party shall comply with the emergency and release response and reporting requirements under the Emergency Response and Reporting provisions of the SOW. Subject to Section XV (Covenants by Plaintiff), nothing in this Consent Decree, including the Emergency Response and Reporting provisions of the SOW, limits any authority of Plaintiff: (a) to take all appropriate action to protect human health and the

environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, or (b) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site. If, due to the Settling Party's failure to take appropriate response action under the Emergency Response and Reporting provisions of the SOW, EPA takes such action instead, the Settling Party shall reimburse EPA under Section X (Payments for Response Costs) for all costs of the response action.

12. **Community Involvement.** If requested by EPA, the Settling Party shall conduct community involvement activities under EPA's oversight as provided for in, and in accordance with Section 2 (Community Involvement) of the SOW. Costs incurred by the United States under this Section constitute Future Response Costs to be reimbursed under Section X (Payments for Response Costs).

13. **Modification of SOW or Related Deliverables.**

a. If EPA determines that it is necessary to modify the work specified in the SOW and/or in deliverables developed under the SOW in order to achieve and/or maintain the Performance Standards or to carry out and maintain the effectiveness of the RA, and such modification is consistent with the Scope of the Remedy set forth in the SOW, then EPA may notify the Settling Party of such modification. If the Settling Party objects to the modification it may, within 30 days after EPA's notification, seek dispute resolution under Section XIII.

b. The SOW and/or related work plans shall be modified: (1) in accordance with the modification issued by EPA; or (2) if the Settling Party invokes dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this Consent Decree, and the Settling Party shall implement all work required by such modification. The Settling Party shall incorporate the modification into the deliverables required under the SOW, as appropriate.

c. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions as otherwise provided in this Consent Decree.

14. Nothing in this Consent Decree, the SOW, or any deliverable required under the SOW constitutes a warranty or representation of any kind by the Plaintiff that compliance with the work requirements set forth in the SOW or related deliverables will achieve the Performance Standards.

VII. REMEDY REVIEW

15. **Periodic Review.** The Settling Party shall conduct, in accordance with the Periodic Review Support Plan provisions of the SOW, studies and investigations to support EPA's reviews under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and applicable regulations, of whether the RA is protective of human health and the environment.

VIII. PROPERTY REQUIREMENTS

Agreements Regarding Access and Non-Interference.

16. The Settling Party shall, with respect to any Non-Settling Owner's Affected Property, use best efforts to secure from such Non-Settling Owner an agreement, enforceable by the Settling Party and by the Plaintiff, providing that such Non-Settling Owner shall (and the Settling Party, with respect to the Settling Party's Affected Property, shall): (i) Provide Plaintiff and the Settling Party, and their representatives, contractors, and subcontractors with access at all reasonable times to such Affected Property to conduct any activity regarding the Consent Decree, including those listed in ¶ 16.a. (Access Requirements); and (ii) refrain from using such Affected Property in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material, or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action including the restrictions listed in ¶ 16.b. (Land, Water, or Other Resource Use Restrictions).

a. **Access Requirements.** The following is a list of activities for which access is required regarding the Affected Property:

- (1) Monitoring the Work;
- (2) Verifying any data or information submitted to the United States;
- (3) Conducting investigations regarding contamination at or near the Site;
- (4) Obtaining samples;
- (5) Assessing the need for, planning, or implementing additional response actions at or near the Site;
- (6) Assessing implementation of quality assurance and quality control practices as defined in the approved construction quality assurance quality control plan as provided in the SOW;
- (7) Implementing the Work pursuant to the conditions set forth in ¶ 61 (Work Takeover);
- (8) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by the Settling Party or its agents, consistent with Section XVIII (Access to Information);
- (9) Assessing the Settling Party's compliance with the Consent Decree;
- (10) Determining whether the Affected Property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Consent Decree; and

(11) Implementing, monitoring, maintaining, reporting on, and enforcing any land, water, or other resource use restrictions and Institutional Controls.

b. **Land, Water, or Other Resource Use Restrictions.** The following is a list of land, water, or other resource use restrictions applicable to the Affected Property:

- (1) Prohibiting residential use of the SMC Facility;
- (2) Ensuring that existing building caps, paving caps, soil caps, and vegetative caps are not disturbed, i.e., by paving the former footprint of any buildings that are demolished;
- (3) Requiring inspection and maintenance of paving caps, soil caps, vegetative caps, and fencing;
- (4) Instituting a management plan to require proper handling and disposal of contaminated soil and sediment, if any future development involves disturbance of the subsurface soil; and
- (5) Instituting a management plan to require that workers wear appropriate protective equipment when handling contaminated soil and sediment.

17. **Best Efforts.** As used in this Section, “best efforts” means the efforts that a reasonable person in the position of the Settling Party would use so as to achieve the goal in a timely manner, including the cost of employing professional assistance and the payment of reasonable sums of money to secure access and/or use restriction agreements. For purposes of gaining access to property, “best efforts” shall presumptively include commencing and prosecuting an action to obtain access and other allowable relief under N.J.S.A. 58:10B-16 of New Jersey’s Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq. If the Settling Party is unable to accomplish what is required through “best efforts” in a timely manner, it shall notify the United States, and include a description of the steps taken to comply with the requirements. If the United States deems it appropriate, it may assist the Settling Party or take independent action, in obtaining such access and/or use restrictions. All costs incurred by the United States in providing such assistance or taking such action, including the cost of attorney time and the amount of monetary consideration or just compensation paid, constitute Future Response Costs to be reimbursed under Section X (Payments for Response Costs).

18. **Notice to Successors-in-Title.**

a. The Settling Party shall, within 15 days after the Effective Date, submit for EPA approval a notice to be filed regarding the Settling Party’s Affected Property in the appropriate land records. The notice must: (1) include a proper legal description of the Affected Property; (2) provide notice to all successors-in-title: (i) that the Affected Property is part of, or related to, the Site; (ii) that EPA has selected a remedy for the Site; and (iii) that potentially responsible parties have entered into a Consent Decree requiring implementation of such remedy; and (3) identify the U.S. District Court in which the Consent Decree was filed, the name and civil action number of this case, and the date the Consent Decree was entered by the Court.

The Settling Party shall record the notice within 10 days after EPA's approval of the notice and submit to EPA, within 10 days thereafter, a certified copy of the recorded notice.

b. The Settling Party shall, prior to entering into a contract to Transfer the Settling Party's Affected Property, or 60 days prior to transferring the Settling Party's Affected Property, whichever is earlier:

(1) Notify the proposed transferee that EPA has selected a remedy regarding the Site, that potentially responsible parties have entered into a Consent Decree requiring implementation of such remedy, and that the United States District Court has entered the Consent Decree (identifying the name and civil action number of this case and the date the Consent Decree was entered by the Court); and

(2) Notify EPA of the name and address of the proposed transferee and provide EPA with a copy of the notice that it provided to the proposed transferee.

19. In the event of any Transfer of the Affected Property, unless the United States otherwise consents in writing, the Settling Party shall continue to comply with its obligations under the Consent Decree, including the obligation to secure access and ensure compliance with any land, water, or other resource use restrictions regarding the Affected Property and to implement, maintain, monitor, and report on Institutional Controls.

20. Notwithstanding any provision of the Consent Decree, Plaintiff retains all of its access authorities and rights, as well as all of its rights to require land, water, or other resource use restrictions and Institutional Controls, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

IX. FINANCIAL ASSURANCE

21. In order to ensure completion of the Work, the Settling Party shall secure financial assurance, initially in the amount of \$5,635,000.00 ("Estimated Cost of the Work"), for the benefit of EPA. The financial assurance must be one or more of the mechanisms listed in a. through f. below, in a form substantially similar to the relevant sample documents available from the "Financial Assurance" category on the Cleanup Enforcement Model Language and Sample Documents Database at <http://cfpub.epa.gov/compliance/models/>, and satisfactory to EPA. The Settling Party may use multiple mechanisms if they are limited to surety bonds guaranteeing payment, letters of credit, trust funds, and/or insurance policies.

a. A surety bond guaranteeing payment and/or performance of the Work that is issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. An irrevocable letter of credit, payable to or at the direction of EPA, that is issued by an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency;

c. A trust fund established for the benefit of EPA that is administered by a trustee that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency;

d. A policy of insurance that provides EPA with acceptable rights as a beneficiary thereof and that is issued by an insurance carrier that has the authority to issue insurance policies in the applicable jurisdiction(s) and whose insurance operations are regulated and examined by a federal or state agency;

e. A demonstration by the Settling Party that it meets the relevant financial test criteria of 40 C.F.R. § 264.143(f) and reporting requirements of this Section for the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee, accompanied by a standby funding commitment, which obligates the Settling Party to pay funds to or at the direction of EPA, up to the amount financially assured through the use of this demonstration in the event of a Work Takeover; or

f. A guarantee to fund or perform the Work executed in favor of EPA by one of the following: (1) a direct or indirect parent company of the Settling Party; or (2) a company that has a “substantial business relationship” (as defined in 40 C.F.R. § 264.141(h)) with the Settling Party; provided, however, that any company providing such a guarantee must demonstrate to EPA’s satisfaction that it meets the relevant financial test criteria of 40 C.F.R. § 264.143(f) and reporting requirements of this Section for the sum of the Estimated Cost of the Work and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee.

22. The Settling Party has selected, and EPA has found satisfactory, as an initial financial assurance an insurance policy prepared in accordance with ¶ 21. Within 30 days after the Effective Date, or 30 days after EPA’s approval of the form and substance of the Settling Party’s financial assurance, whichever is later, the Settling Party shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the EPA-approved form of financial assurance and shall submit such mechanisms and documents to the United States, and to EPA as specified in Section XX (Notices and Submissions).

23. If the Settling Party provides financial assurance by means of a demonstration or guarantee under ¶ 21.e or 21.f, the Settling Party shall also comply and shall ensure that its guarantors comply with the other relevant criteria and requirements of 40 C.F.R. § 264.143(f) and this Section, including, but not limited to: (a) the initial submission to EPA of required documents from the relevant Settling Party’s chief financial officer and independent certified public accountant no later than 30 days after the Effective Date; (b) the annual resubmission of such documents within 90 days after the close of the relevant Settling Party’s fiscal year; and (c) the notification of EPA no later than 30 days, in accordance with ¶ 24, after the relevant Settling Party determines that it no longer satisfies the relevant financial test criteria and requirements set forth at 40 C.F.R. § 264.143(f)(1). The Settling Party agrees that EPA may also, based on a belief that the Settling Party may no longer meet the financial test requirements of ¶ 21.e or 21.f, require reports of financial condition at any time from the Settling Party in addition to those

specified in this Paragraph. For purposes of this Section, references in 40 C.F.R. Part 264, Subpart H, to: (1) the terms “current closure cost estimate,” “current post-closure cost estimate,” and “current plugging and abandonment cost estimate” include the Estimated Cost of the Work; (2) the phrase “the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates” includes the sum of all environmental obligations (including obligations under CERCLA, RCRA, and any other federal, state, or tribal environmental obligation) guaranteed by such company or for which such company is otherwise financially obligated in addition to the Estimated Cost of the Work under this Consent Decree; (3) the terms “owner” and “operator” include the Settling Party making a demonstration or obtaining a guarantee under ¶ 21.e or 21.f; and (4) the terms “facility” and “hazardous waste management facility” include the Site.

24. The Settling Party shall diligently monitor the adequacy of the financial assurance. If the Settling Party becomes aware of any information indicating that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, the Settling Party shall notify EPA of such information within 7 days. If EPA determines that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, EPA will notify the Settling Party of such determination. The Settling Party shall, within 30 days after notifying EPA or receiving notice from EPA under this Paragraph, secure and submit to EPA for approval a proposal for a revised or alternative financial assurance mechanism that satisfies the requirements of this Section. EPA may extend this deadline for such time as is reasonably necessary for the Settling Party, in the exercise of due diligence, to secure and submit to EPA a proposal for a revised or alternative financial assurance mechanism, not to exceed 60 days. The Settling Party shall follow the procedures of ¶ 26 (Modification of Financial Assurance) in seeking approval of, and submitting documentation for, the revised or alternative financial assurance mechanism. The Settling Party’s inability to secure and submit to EPA financial assurance in accordance with this Section shall in no way excuse performance of any other requirements of this Consent Decree, including, without limitation, the obligation of the Settling Party to complete the Work in accordance with the terms of this Consent Decree.

25. Access to Financial Assurance.

a. If EPA issues a notice of implementation of a Work Takeover under ¶ 61.b, then, in accordance with any applicable financial assurance mechanism and/or related standby funding commitment, EPA is entitled to: (1) the performance of the Work; and/or (2) require that any funds guaranteed be paid in accordance with ¶ 25.d.

b. If EPA is notified by the issuer of a financial assurance mechanism that it intends to cancel such mechanism, and the Settling Party fails to provide an alternative financial assurance mechanism in accordance with this Section at least 30 days prior to the cancellation date, the funds guaranteed under such mechanism must be paid prior to cancellation in accordance with ¶ 25.d.

c. If, upon issuance of a notice of implementation of a Work Takeover under ¶ 61.b, either: (1) EPA is unable for any reason to promptly secure the resources guaranteed

under any applicable financial assurance mechanism and/or related standby funding commitment, whether in cash or in kind, to continue and complete the Work; or (2) the financial assurance is provided under ¶ 21.e or 21.f, then EPA may demand an amount, as determined by EPA, sufficient to cover the cost of the remaining Work to be performed. The Settling Party shall, within 10 days of such demand, pay the amount demanded as directed by EPA.

d. Any amounts required to be paid under this ¶ 25 shall be, as directed by EPA: (i) paid to EPA in order to facilitate the completion of the Work by EPA or by another person; or (ii) deposited into an interest-bearing account, established at a duly chartered bank or trust company that is insured by the FDIC, in order to facilitate the completion of the Work by another person. If payment is made to EPA, EPA may deposit the payment into the EPA Hazardous Substance Superfund or into the Shieldalloy Metallurgical Corporation Superfund Site Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

e. All EPA Work Takeover costs not paid under this ¶ 25 must be reimbursed as Future Response Costs under Section X (Payments for Response Costs).

26. **Modification of Amount, Form, or Terms of Financial Assurance.** The Settling Party may submit, on any anniversary of the Effective Date or at any other time agreed to by the Parties, a request to reduce the amount, or change the form or terms, of the financial assurance mechanism. Any such request must be submitted to EPA in accordance with ¶ 22, and must include an estimate of the cost of the remaining Work, an explanation of the bases for the cost calculation, and a description of the proposed changes, if any, to the form or terms of the financial assurance. EPA will notify the Settling Party of its decision to approve or disapprove a requested reduction or change pursuant to this Paragraph. The Settling Party may reduce the amount of the financial assurance mechanism only in accordance with: (a) EPA's approval; or (b) if there is a dispute, the agreement, final administrative decision, or final judicial decision resolving such dispute under Section XIII (Dispute Resolution). Any decision made by EPA on a request submitted under this Paragraph to change the form or terms of a financial assurance mechanism shall be made in EPA's sole and unreviewable discretion, and such decision shall not be subject to challenge by the Settling Party pursuant to the dispute resolution provisions of this Consent Decree or in any other forum. Within 30 days after receipt of EPA's approval of, or the agreement or decision resolving a dispute relating to, the requested modifications pursuant to this Paragraph, the Settling Party shall submit to EPA documentation of the reduced, revised, or alternative financial assurance mechanism in accordance with ¶ 22.

27. **Release, Cancellation, or Discontinuation of Financial Assurance.** The Settling Party may release, cancel, or discontinue any financial assurance provided under this Section only: (a) if EPA issues a "Certification of Work Completion" as provided in the SOW; (b) in accordance with EPA's approval of such release, cancellation, or discontinuation; or (c) if there is a dispute regarding the release, cancellation or discontinuance of any financial assurance, in accordance with the agreement, final administrative decision, or final judicial decision resolving such dispute under Section XIII (Dispute Resolution).

X. PAYMENTS FOR RESPONSE COSTS

28. **Payment by the Settling Party for United States Past Response Costs.**

a. Within 30 days after the Effective Date, the Settling Party shall pay to EPA \$505,000.00 in payment for Past Response Costs. Payment shall be made in accordance with ¶ 30.a (instructions for past response cost payments).

b. **Deposit of Past Response Costs Payment.** Of the total amount to be paid by the Settling Party pursuant to ¶ 28.a, 100% shall be deposited by EPA in the Shieldalloy Metallurgical Corporation Site Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

29. **Payments by the Settling Party for Future Response Costs.** The Settling Party shall pay to EPA all Future Response Costs not inconsistent with the NCP.

a. **Periodic Bills.** On a periodic basis, EPA will send the Settling Party a bill requiring payment that includes a SCORPIOS Report, which includes direct and indirect costs incurred by EPA, its contractors, subcontractors, and DOJ. The Settling Party shall make all payments within 30 days after the Settling Party's receipt of each bill requiring payment, except as otherwise provided in ¶ 31, in accordance with ¶ 30.b (instructions for future response cost payments).

b. **Deposit of Future Response Costs Payments.** Of the total amount to be paid by the Settling Party pursuant to ¶ 29.a, 100% shall be deposited by EPA in the Shieldalloy Metallurgical Corporation Site Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund, provided, however, that EPA may deposit a Future Response Costs payment directly into the EPA Hazardous Substance Superfund if, at the time the payment is received, EPA estimates that the Shieldalloy Metallurgical Corporation Site Special Account balance is sufficient to address currently anticipated future response actions to be conducted or financed by EPA at or in connection with the Site. Any decision by EPA to deposit a Future Response Costs payment directly into the EPA Hazardous Substance Superfund for this reason shall not be subject to challenge by the Settling Party pursuant to the dispute resolution provisions of this Consent Decree or in any other forum.

30. **Payment Instructions for the Settling Party as to EPA's Response Costs.**

a. **Past Response Costs Payments and Future Response Costs Prepayments.**

(1) The Financial Litigation Unit (FLU) of the United States Attorney's Office for the District of New Jersey shall provide the Settling Party, in accordance with ¶ 83, with instructions regarding making payments to DOJ on behalf of EPA. The instructions must include a Consolidated Debt Collection System (CDCS) number to identify payments made under this Consent Decree.

(2) For all payments subject to this ¶ 30.a, the Settling Party shall make such payment by Fedwire Electronic Funds Transfer (EFT) / at <https://www.pay.gov>] to the U.S. DOJ account, in accordance with the instructions provided under ¶ 30.a(1), and including references to the CDCS Number, Site/Spill ID Number 02 – B7, and DJ Number 90-11-3-1285.

(3) For each payment made under this ¶ 30.a, the Settling Party shall send notices, including references to the CDCS, Site/Spill ID, and DJ numbers, to the United States, EPA, and the EPA Cincinnati Finance Center, all in accordance with ¶ 83.

b. **Future Response Costs Payments and Stipulated Penalties.**

(1) For all payments subject to this ¶ 30.b, the Settling Party shall make such payment by Fedwire EFT, referencing the Site/Spill ID and DJ numbers. The Fedwire EFT payment must be sent as follows:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045
Field Tag 4200 of the Fedwire message should read
“D 68010727 Environmental Protection Agency”

For all payments made under this ¶ 30.b, the Settling Party must include references to the Site/Spill ID and DJ numbers. At the time of any payment required to be made in accordance with ¶ 30.b, the Settling Party shall send notices that payment has been made to the United States, EPA, and the EPA Cincinnati Finance Center, all in accordance with ¶ 83. All notices must include references to the Site/Spill ID and DJ numbers.

31. **Contesting Future Response Costs.** The Settling Party may submit a Notice of Dispute, initiating the procedures of Section XIII (Dispute Resolution), regarding any Future Response Costs billed under ¶ 29 (Payments by the Settling Party for Future Response Costs) if it determines that EPA has made a mathematical error or included a cost item that is not within the definition of Future Response Costs, or if it believes EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. Such Notice of Dispute shall be submitted in writing within 30 days after receipt of the bill and must be sent to the United States (if the United States’ accounting is being disputed) pursuant to Section XX (Notices and Submissions). Such Notice of Dispute shall specifically identify the contested Future Response Costs and the basis for objection. If the Settling Party submits a Notice of Dispute, the Settling Party shall, within the 30-day period, also as a requirement for initiating the dispute, (a) pay all uncontested Future Response Costs to the United States, and (b) establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation (FDIC), and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. The Settling Party shall send to the United States, as provided in Section XX (Notices and Submissions), a copy of the

transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. If the United States prevails in the dispute, the Settling Party shall pay the sums due (with accrued interest) to the United States within 7 days after the resolution of the dispute. If the Settling Party prevails concerning any aspect of the contested costs, the Settling Party shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to the United States within 7 days after the resolution of the dispute. The Settling Party shall be disbursed any balance of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with ¶ 30.b (instructions for future response cost payments). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIII (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding the Settling Party's obligation to reimburse the United States for its Future Response Costs.

32. **Interest.** In the event that any payment for Past Response Costs or for Future Response Costs required under this Section is not made by the date required, the Settling Party shall pay Interest on the unpaid balance. The Interest on Past Response Costs shall begin to accrue on the Effective Date. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of the Settling Party's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of the Settling Party's failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to ¶ 48 (Stipulated Penalty Amounts – Work).

XI. INDEMNIFICATION AND INSURANCE

33. **The Settling Party's Indemnification of the United States.**

a. The United States does not assume any liability by entering into this Consent Decree or by virtue of any designation of the Settling Party as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). The Settling Party shall indemnify, save, and hold harmless the United States and its officials, agents, employees, contractors, subcontractors, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of the Settling Party, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on the Settling Party's behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of the Settling Party as EPA's authorized representative under Section 104(e) of CERCLA. Further, the Settling Party agrees to pay the United States all costs it incurs including, but not limited to, attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of the Settling Party, its respective officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities

pursuant to this Consent Decree. The United States shall not be held out as a party to any contract entered into by or on behalf of the Settling Party in carrying out activities pursuant to this Consent Decree. Neither the Settling Party, nor any such contractor shall be considered an agent of the United States.

b. The United States shall give the Settling Party notice of any claim for which the United States plans to seek indemnification pursuant to this ¶ 33, and shall consult with the Settling Party prior to settling such claim.

34. The Settling Party covenants not to sue and agrees not to assert any claims or causes of action against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between the Settling Party and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, the Settling Party shall indemnify, save and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between the Settling Party and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

35. **Insurance.** No later than 15 days before commencing any on-site Work, the Settling Party or its designee, TRC, shall secure, and shall maintain until the first anniversary after issuance of the latest of EPA's "Certification of RA Completion" pursuant to the SOW, commercial general liability insurance with limits of \$10 million, for any one occurrence, and automobile liability insurance with limits of \$5 million, combined single limit, naming the United States as an additional insured with respect to all liability arising out of the activities performed by or on behalf of the Settling Party pursuant to this Consent Decree. The insurance limits required pursuant to this Paragraph may be satisfied via a combination of primary and excess insurance coverage. In addition, for the duration of this Consent Decree, the Settling Party shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of the Settling Party in furtherance of this Consent Decree. Prior to commencement of the Work, the Settling Party shall provide to EPA certificates of such insurance and a copy of each insurance policy. The Settling Party shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. If the Settling Party demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, the Settling Party need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor.

XII. FORCE MAJEURE

36. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of the Settling Party, of any entity controlled by the Settling Party, or of the Settling Party's contractors that delays or prevents the performance of

any obligation under this Consent Decree despite the Settling Party's best efforts to fulfill the obligation. The requirement that the Settling Party exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work or a failure to achieve the Performance Standards.

37. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree for which the Settling Party intends or may intend to assert a claim of force majeure, the Settling Party shall notify EPA's Project Coordinator orally or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Emergency and Remedial Response Division, EPA Region 2, within 24 hours of when the Settling Party first knew that the event might cause a delay. Within 7 days thereafter, the Settling Party shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the Settling Party's rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of the Settling Party, such event may cause or contribute to an endangerment to public health or welfare, or the environment. The Settling Party shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. The Settling Party shall be deemed to know of any circumstance of which the Settling Party, any entity controlled by the Settling Party, or the Settling Party's contractors or subcontractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude the Settling Party from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late or incomplete notice, is able to assess to its satisfaction whether the event is a force majeure under ¶ 36 and whether the Settling Party has exercised its best efforts under ¶ 36, EPA may, in its unreviewable discretion, excuse in writing the Settling Party's failure to submit timely or complete notices under this Paragraph.

38. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Consent Decree that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify the Settling Party in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify the Settling Party in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

39. If the Settling Party elects to invoke the dispute resolution procedures set forth in Section XIII (Dispute Resolution) regarding EPA's decision, it shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, the Settling Party shall have the burden of

demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that the Settling Party complied with the requirements of ¶¶ 36 and 37. If the Settling Party carries this burden, the delay at issue shall be deemed not to be a violation by the Settling Party of the affected obligation of this Consent Decree identified to EPA and the Court.

40. The failure by EPA to timely complete any obligation under the Consent Decree or under the SOW is not a violation of the Consent Decree, provided, however, that if such failure prevents the Settling Party from meeting one or more deadlines in the SOW, the Settling Party may seek relief under this Section.

XIII. DISPUTE RESOLUTION

41. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes regarding this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of the Settling Party that have not been disputed in accordance with this Section.

42. A dispute shall be considered to have arisen when one party sends the other Parties a written Notice of Dispute. Any dispute regarding this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed 20 days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute.

43. Statements of Position.

a. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless, within 30 days after the conclusion of the informal negotiation period, the Settling Party invoke the formal dispute resolution procedures of this Section by serving on the United States a single written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the Settling Party. The Statement of Position shall specify the Settling Party's position as to whether formal dispute resolution should proceed under ¶ 44 (Record Review) or ¶ 45.

b. Within 30 days after receipt of the Settling Party's Statement of Position, EPA will serve on the Settling Party its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under ¶ 44 (Record Review) or ¶ 45. Within 14 days after receipt of EPA's Statement of Position, the Settling Party may submit a single Reply.

c. If there is disagreement between EPA, on the one hand, and the Settling Party on the other, as to whether dispute resolution should proceed under ¶ 44 (Record Review) or 45, the parties to the dispute shall follow the procedures set forth in the Paragraph determined by EPA to be applicable. However, if the Settling Party ultimately appeals to the Court to resolve the dispute, the Court shall determine which Paragraph is applicable in accordance with the standards of applicability set forth in ¶¶ 44 and 45.

44. **Record Review.** Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation, the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree, and the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by the Settling Party regarding the validity of the RODs' provisions.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this Section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the Emergency and Remedial Response Division, EPA Region 2, will issue a final administrative decision resolving the dispute based on the administrative record described in ¶ 44.a. This decision shall be binding upon the Settling Party, subject only to the right to seek judicial review pursuant to ¶¶ 44.c and 44.d.

c. Any administrative decision made by EPA pursuant to ¶ 44.b shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by the Settling Party with the Court and served on all Parties within 10 days after receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to the Settling Party's motion.

d. In proceedings on any dispute governed by this Paragraph, the Settling Party shall have the burden of demonstrating that the decision of the Emergency and Remedial Response Division Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to ¶ 44.a.

45. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

a. The Director of the Emergency and Remedial Response Division, EPA Region 2, will issue a final decision resolving the dispute based on the statements of position and reply, if any, served under ¶ 43. The Emergency and Remedial Response Division Director's decision shall be binding on the Settling Party unless, within 10 days after receipt of the decision, the Settling Party files with the Court and serves on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to the Settling Party's motion.

b. Notwithstanding ¶ R (CERCLA § 113(j) record review of RODs and Work) of Section I (Background), judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

46. The invocation of formal dispute resolution procedures under this Section does not extend, postpone, or affect in any way any obligation of the Settling Party under this Consent Decree, except as provided in ¶ 31 (Contesting Future Response Costs), as agreed by EPA, or as determined by the Court. Stipulated penalties with respect to the disputed matter shall continue to accrue, but payment shall be stayed pending resolution of the dispute, as provided in ¶ 54. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that the Settling Party does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XIV (Stipulated Penalties).

XIV. STIPULATED PENALTIES

47. The Settling Party shall be liable for stipulated penalties in the amounts set forth in ¶¶ 48 and 49 to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XII (Force Majeure). "Compliance" by the Settling Party shall include completion of all activities and obligations, including payments, required under this Consent Decree, or any deliverable approved under this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any deliverables approved under this Consent Decree and within the specified time schedules established by and approved under this Consent Decree.

48. Stipulated Penalty Amounts - Work (Including Payments and Excluding Deliverables).

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in ¶ 48.b:

Period of Noncompliance	Penalty Per Violation Per Day
1st through 14th day	\$1,500
15th through 30th day	\$3,500
31st day and beyond	\$6,000

b. Compliance Milestones.

- (1) Payment of Past Response Costs;
- (2) Payment of Future Response Costs – 30 days after receipt of bill and SCORPIOS Report from EPA; and
- (3) Establishment and maintenance of financial assurance in compliance with the timelines and other substantive and procedural requirements of Section IX (Financial Assurance).
- (4) Compliance with all deliverable and reporting requirements set forth in Section VI of this Consent Decree (Performance of Work) and in the provisions respecting “Remedial Action” and “Reporting” in the SOW; and
- (5) Implementation of the Remedial Action and Operation and Maintenance in accordance with the SOW, the OU1 ROD and the OU2 ROD, and/or this Consent Decree, and plans and schedules approved thereunder, including designation of the Supervising Contractor, hiring of contractors, submission of plans, schedules, and reports, and completion of tasks in accordance with deadlines and requirements specified therein.

49. **Stipulated Penalty Amounts - Deliverables.**

a. **Material Defects.** If an initially submitted or resubmitted deliverable contains a material defect, and the deliverable is disapproved or modified by EPA under the provisions respecting “Initial Submissions” or “Resubmissions” of the SOW due to such material defect, then the material defect shall constitute a lack of compliance for purposes of ¶ 47. The provisions of Section XIII (Dispute Resolution) and Section XIV (Stipulated Penalties) shall govern the accrual and payment of any stipulated penalties regarding the Settling Party’s submissions under this Consent Decree.

b. The following stipulated penalties shall accrue per violation per day for non-compliance with any requirement of this Consent Decree not identified in ¶ 49.b:

Period of Noncompliance	Penalty Per Violation Per Day
1st through 14th day	\$1,000
15th through 30th day	\$2,500
31st day and beyond	\$4,000

50. In the event that EPA assumes performance of a portion or all of the Work pursuant to ¶ 61 (Work Takeover), the Settling Party shall be liable for a stipulated penalty in the amount of \$750,000. Stipulated penalties under this Paragraph are in addition to the remedies available under ¶¶ 25 (Access to Financial Assurance) and 61 (Work Takeover).

51. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under the provisions respecting "Approval of Deliverables" of the SOW, during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies the Settling Party of any deficiency; (b) with respect to a decision by the Director of the Emergency and Remedial Response Division, EPA Region 2, under ¶ 44.b or 45.a of Section XIII (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that the Settling Party's reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute; or (c) with respect to judicial review by this Court of any dispute under Section XIII (Dispute Resolution), during the period, if any, beginning on the 31st day after the Court's receipt of the final submission regarding the dispute until the date that the Court issues a final decision regarding such dispute. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

52. Following EPA's determination that the Settling Party has failed to comply with a requirement of this Consent Decree, EPA may give the Settling Party written notification of the same and describe the noncompliance. EPA may send the Settling Party a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified the Settling Party of a violation.

53. All penalties accruing under this Section shall be due and payable to the United States within 30 days after the Settling Party's receipt from EPA of a demand for payment of the penalties, unless the Settling Party invokes the Dispute Resolution procedures under Section XIII (Dispute Resolution) within the 30-day period. All payments to the United States under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with ¶ 30.b (instructions for future response cost payments).

54. Penalties shall continue to accrue as provided in ¶ 51 during any dispute resolution period, but need not be paid until the following:

a. If the dispute is resolved by agreement of the parties or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owed shall be paid to EPA within 15 days after the agreement or the receipt of EPA's decision or order;

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, the Settling Party shall pay all accrued penalties determined by the Court to be owed to EPA within 60 days after receipt of the Court's decision or order, except as provided in ¶ 54.c;

c. If the District Court's decision is appealed by any Party, the Settling Party shall pay all accrued penalties determined by the District Court to be owed to the United States into an interest-bearing escrow account, established at a duly chartered bank or trust company that is insured by the FDIC, within 60 days after receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every 60 days. Within 15 days after receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to the Settling Party to the extent that it prevails.

55. If the Settling Party fails to pay stipulated penalties when due, the Settling Party shall pay Interest on the unpaid stipulated penalties as follows: (a) if the Settling Party has timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due pursuant to ¶ 54 until the date of payment; and (b) if the Settling Party fails to timely invoke dispute resolution, Interest shall accrue from the date of demand under ¶ 53 until the date of payment. If the Settling Party fails to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

56. The payment of penalties and Interest, if any, shall not alter in any way the Settling Party's obligation to complete the performance of the Work required under this Consent Decree.

57. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of the Settling Party's violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), provided, however, that the United States shall not seek civil penalties pursuant to Section 122(l) of CERCLA for any violation for which a stipulated penalty is provided in this Consent Decree, except in the case of a willful violation of this Consent Decree.

58. Notwithstanding any other provision of this Section, the United States may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Consent Decree.

XV. COVENANTS BY PLAINTIFF

59. **Covenants for The Settling Party by United States.** Except as provided in ¶ 60 (General Reservations of Rights), the United States covenants not to sue or to take administrative action against the Settling Party pursuant to Sections 106 and 107(a) of CERCLA for the Work, Past Response Costs, Future Response Costs, and Natural Resource Damages. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon the satisfactory

performance by the Settling Party of its obligations under this Consent Decree. These covenants extend only to the Settling Party and do not extend to any other person.

60. **General Reservations of Rights.** The United States reserves, and this Consent Decree is without prejudice to, all rights against the Settling Party with respect to all matters not expressly included within the United States' covenants. Notwithstanding any other provision of this Consent Decree, the United States reserves all rights against the Settling Party with respect to:

- a. liability for failure by the Settling Party to meet a requirement of this Consent Decree;
- b. liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site;
- c. liability based on the ownership of the Site by the Settling Party when such ownership commences after signature of this Consent Decree by the Settling Party;
- d. liability based on the operation of the Site by the Settling Party when such operation commences after signature of this Consent Decree by the Settling Party and does not arise solely from the Settling Party's performance of the Work;
- e. liability based on the Settling Party's transportation, treatment, storage, or disposal, or arrangement for transportation, treatment, storage, or disposal of Waste Material at or in connection with the Site, other than as provided in the OU1 ROD and OU2 ROD, the Work, or otherwise ordered by EPA, after signature of this Consent Decree by the Settling Party;
- f. criminal liability;
- g. liability for violations of federal or state law that occur during or after implementation of the Work; and
- h. liability, prior to achievement of Performance Standards, for additional response actions that EPA determines are necessary to achieve and maintain Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the OU1 ROD and OU2 ROD, but that cannot be required pursuant to ¶ 13 (Modification of SOW or Related Deliverables);
- i. liability for additional operable units at the Site or the final response action; and
- j. liability for costs that the United States will incur regarding the Site but that are not within the definition of Future Response Costs.
- k. Reservations Regarding NRD
 - (a) Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute civil

or administrative proceedings, as applicable, against SMC in this action or in a new action, seeking recovery of Natural Resource Damages, including costs of damage assessment, under Section 107(a)(4)(C) of CERCLA, if, after the Effective Date:

(i) conditions at the Site, previously unknown to a NR Trustee are discovered and are found to result in releases of hazardous substances that contribute to injury to, destruction of, or loss of natural resources; or

(ii) information previously unknown to a NR Trustee is received, and the NR Trustee determines that the new information together with other relevant information indicate that releases of hazardous substances at the Site have resulted in injury to, destruction of, or loss of natural resources of a type or magnitude that was unknown to the NR Trustee as of the date of lodging of the Consent Decree.

(b) The United States reserves all rights it may have under applicable law to oppose any determinations made or any actions taken, ordered or proposed by the State pursuant to this Paragraph.

(c) For purposes of Paragraph 60.k.(a), the information and conditions known to the NR Trustee includes only that information and those conditions known to the NR Trustee as of the date the relevant ROD was signed and set forth in the RODs for the Site and the administrative records supporting the RODs.

61. Work Takeover.

a. In the event EPA determines that the Settling Party: (1) has ceased implementation of any portion of the Work; (2) is seriously or repeatedly deficient or late in their performance of the Work; or (3) is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice (“Work Takeover Notice”) to the Settling Party. Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide the Settling Party a period of 20 days within which to remedy the circumstances giving rise to EPA’s issuance of such notice.

b. If, after expiration of the 20-day notice period specified in ¶ 61.a, the Settling Party has not remedied to EPA’s satisfaction the circumstances giving rise to EPA’s issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary (“Work Takeover”). EPA will notify the Settling Party in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this ¶ 61.b. Funding of Work Takeover costs is addressed under ¶ 25 (Access to Financial Assurance).

c. The Settling Party may invoke the procedures set forth in ¶ 44 (Record Review), to dispute EPA’s implementation of a Work Takeover under ¶ 61.b. However, notwithstanding the Settling Party’s invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under ¶ 61.b until the earlier of (1) the date that the Settling Party corrects, to EPA’s satisfaction, the circumstances giving rise to EPA’s issuance of the relevant Work

Takeover Notice, or (2) the date that a final decision is rendered in accordance with ¶ 44 (Record Review) requiring EPA to terminate such Work Takeover.

62. Notwithstanding any other provision of this Consent Decree, the United States retains all authority and reserves all rights to take any and all response actions authorized by law.

XVI. COVENANTS BY THE SETTLING PARTY

63. **Covenants by the Settling Party.** Subject to the reservations in ¶ 65, the Settling Party covenants not to sue and agrees not to assert any claims or causes of action against the United States with respect to the Work, past response actions regarding the Site, Past Response Costs, Future Response Costs, and this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund through CERCLA §§ 106(b)(2), 107, 111, 112 or 113, or any other provision of law;

b. any claims under CERCLA §§ 107 or 113, RCRA Section 7002(a), 42 U.S.C. § 6972(a), or state law regarding the Work, past response actions regarding the Site, Past Response Costs, Future Response Costs, and this Consent Decree; or

c. any claims arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the New Jersey Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law.

64. Except as provided in ¶¶ 67 (Waiver of Claims by the Settling Party) and 74 (Res Judicata and Other Defenses), the covenants in this Section shall not apply if the United States brings a cause of action or issues an order pursuant to any of the reservations in Section XV (Covenants by Plaintiff), other than in ¶¶ 60.a (claims for failure to meet a requirement of the Consent Decree), 60.f (criminal liability), and 60.g (violations of federal/state law during or after implementation of the Work), but only to the extent that the Settling Party's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

65. The Settling Party reserves, and this Consent Decree is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of the Settling Party's deliverables or activities.

66. Nothing in this Consent Decree shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

67. **Waiver of Claims by the Settling Party.**

a. **De Micromis Waiver.** The Settling Party agrees not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) and 113 of CERCLA) that it may have for all matters relating to the Site against any person where the person's liability to the Settling Party with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances at the Site, or having accepted for transport for disposal or treatment of hazardous substances at the Site, if all or part of the disposal, treatment, or transport occurred before April 1, 2001, and the total amount of material containing hazardous substances contributed by such person to the Site was less than 110 gallons of liquid materials or 200 pounds of solid materials.

b. **Exceptions to Waiver.**

(1) The waiver under this ¶ 67 shall not apply with respect to any defense, claim, or cause of action that the Settling Party may have against any person otherwise covered by such waiver if such person asserts a claim or cause of action relating to the Site against the Settling Party.

(2) The waiver under ¶ 67.a (De Micromis Waiver) shall not apply to any claim or cause of action against any person otherwise covered by such waiver if EPA determines that: (i) the materials containing hazardous substances contributed to the Site by such person contributed significantly or could contribute significantly, either individually or in the aggregate, to the cost of the response action or natural resource restoration at the Site; or (ii) such person has failed to comply with any information request or administrative subpoena issued pursuant to Section 104(e) or 122(e)(3)(B) of CERCLA, 42 U.S.C. § 9604(e) or 9622(e)(3)(B), or Section 3007 of RCRA, 42 U.S.C. § 6927, or has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to the Site; or if (iii) such person has been convicted of a criminal violation for the conduct to which the waiver would apply and that conviction has not been vitiated on appeal or otherwise.

68. The Settling Party agrees not to seek judicial review of the final rule listing the Site on the NPL based on a claim that changed site conditions that resulted from the performance of the Work in any way affected the basis for listing the Site.

XVII. EFFECT OF SETTLEMENT; CONTRIBUTION

69. Except as provided in ¶ 67 (Waiver of Claims by the Settling Party), nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. Except as provided in Section XVI (Covenants by the Settling Party), the Settling Party expressly reserves any and all rights (including, but not limited

to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action that the Settling Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Consent Decree diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2) and (3), to pursue any such persons to obtain additional response costs, Natural Resource Damages or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

70. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially-approved settlement pursuant to which the Settling Party has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, or as may be otherwise provided by law, for the “matters addressed” in this Consent Decree. The “matters addressed” in this Consent Decree are the Work, Past Response Costs and Future Response Costs.

71. The Parties further agree, and by entering this Consent Decree this Court finds, that the Complaint filed by the United States in this action is a civil action within the meaning of Section 113(f)(1) of CERCLA, 42 U.S.C. § 9613(f)(1), and that this Consent Decree constitutes a judicially-approved settlement pursuant to which the Settling Party has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

72. The Settling Party shall, with respect to any suit or claim brought by it for matters related to this Consent Decree, notify the United States in writing no later than 60 days prior to the initiation of such suit or claim.

73. The Settling Party shall, with respect to any suit or claim brought against it for matters related to this Consent Decree, notify in writing the United States within 10 days after service of the complaint on the Settling Party. In addition, the Settling Party shall notify the United States within 10 days after service or receipt of any Motion for Summary Judgment and within 10 days after receipt of any order from a court setting a case for trial.

74. **Res Judicata and Other Defenses.** In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, the Settling Party shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XV (Covenants by Plaintiff).

XVIII. ACCESS TO INFORMATION

75. The Settling Party shall provide to EPA, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within the Settling Party's possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. The Settling Party shall also make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

76. Privileged and Protected Claims.

a. The Settling Party may assert that all or part of a Record requested by the United States is privileged or protected as provided under federal law, in lieu of providing the Record, provided the Settling Party complies with ¶ 76.b, and except as provided in ¶ 76.c.

b. If the Settling Party asserts a claim of privilege or protection, it shall provide Plaintiff with the following information regarding such Record: its title; its date; the name, title, affiliation (e.g., company or firm), and address of the author, of each addressee, and of each recipient; a description of the Record's contents; and the privilege or protection asserted. If a claim of privilege or protection applies only to a portion of a Record, the Settling Party shall provide the Record to Plaintiff in redacted form to mask the privileged or protected portion only. The Settling Party shall retain all Records that it claims to be privileged or protected until Plaintiff has had a reasonable opportunity to dispute the privilege or protection claim and any such dispute has been resolved in the Settling Party's favor.

c. The Settling Party may make no claim of privilege or protection regarding: (1) any data regarding the Site, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological or engineering data, or the portion of any other Record that evidences conditions at or around the Site; or (2) the portion of any Record that the Settling Party is required to create or generate pursuant to this Consent Decree.

77. Business Confidential Claims. The Settling Party may assert that all or part of a Record provided to Plaintiff under this Section or Section XIX (Retention of Records) is business confidential to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). The Settling Party shall segregate and clearly identify all Records or parts thereof submitted under this Consent Decree for which the Settling Party may assert business confidentiality claims. Records submitted to EPA determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA, or if EPA has notified the Settling Party that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to the Settling Party.

78. If relevant to the proceeding, the Parties agree that validated sampling or monitoring data generated in accordance with the SOW and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree.

79. Notwithstanding any provision of this Consent Decree, Plaintiff retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XIX. RETENTION OF RECORDS

80. Until 10 years after EPA's Certification of Work Completion under the "Certification of Work Completion" provisions of the SOW, the Settling Party shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site, provided, however, that the Settling Party, which is potentially liable as an owner or operator of the Site, must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to the Site. The Settling Party must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work, provided, however, that the Settling Party (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

81. At the conclusion of this record retention period, the Settling Party shall notify the United States at least 90 days prior to the destruction of any such Records, and, upon request by the United States, and except as provided in ¶ 76 (Privileged and Protected Claims), the Settling Party shall deliver any such Records to EPA.

82. The Settling Party certifies that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to the Settling Party's potential liability regarding the Site since notification to the Settling Party of potential liability by the United States or the State and that it has fully complied with any and all EPA and State requests for information regarding the Site pursuant to Sections 104(e) and 122(e)(3)(B) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e)(3)(B), and Section 3007 of RCRA, 42 U.S.C. § 6927, and state law.

XX. NOTICES AND SUBMISSIONS

83. All approvals, consents, deliverables, modifications, notices, notifications, objections, proposals, reports, and requests specified in this Consent Decree must be in writing unless otherwise specified. Whenever, under this Consent Decree, notice is required to be given, or a report or other document is required to be sent, by one Party to another, it must be directed to the persons specified below at the addresses specified below. Any Party may change the

person and/or address applicable to it by providing notice of such change to all Parties. All notices under this Section are effective upon receipt, unless otherwise specified. Notices required to be sent to EPA, and not to the United States, should not be sent to the DOJ. Except as otherwise provided, notice to a Party by email (if that option is provided below) or by regular mail in accordance with this Section satisfies any notice requirement of the Consent Decree regarding such Party.

As to the United States:

EES Case Management Unit
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XXI. RETENTION OF JURISDICTION

84. This Court retains jurisdiction over both the subject matter of this Consent Decree and the Settling Party for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIII (Dispute Resolution).

XXII. APPENDICES

85. The following appendices are attached to and incorporated into this Consent Decree:

“Appendix A” is the RODs for OU1 and OU2.

“Appendix B” is the SOW for OU1 and OU2.

“Appendix C” is the map of the Site.

“Appendix D” is the map of the SMC Facility and the Hudson Branch.

“Appendix E” is the draft form of Proprietary Controls.

XXIII. MODIFICATION

86. Except as provided in ¶ 13 (Modification of SOW or Related Deliverables), material modifications to this Consent Decree, including the SOW, shall be in writing, signed by the United States, the Settling Party, and shall be effective upon approval by the Court. Except as provided in ¶ 13, non-material modifications to this Consent Decree, including the SOW, shall be in writing and shall be effective when signed by duly authorized representatives of the United States and the Settling Party. A modification to the SOW shall be considered material if it implements a ROD amendment that fundamentally alters the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(ii). Before providing its approval to any modification to the SOW, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification.

87. Nothing in this Consent Decree shall be deemed to alter the Court’s power to enforce, supervise, or approve modifications to this Consent Decree.

XXIV. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

88. This Consent Decree shall be lodged with the Court for at least 30 days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations that indicate that the Consent Decree is inappropriate, improper, or inadequate. The Settling Party consents to the entry of this Consent Decree without further notice.

89. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XXV. SIGNATORIES/SERVICE

90. Each undersigned representative of the Settling Party and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

91. The Settling Party agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified the Settling Party in writing that it no longer supports entry of the Consent Decree.

92. The Settling Party shall identify, on the attached signature page, the name, address, and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. The Settling Party agrees to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. The Settling Party need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this Consent Decree.

XXVI. FINAL JUDGMENT

93. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties regarding the settlement embodied in the Consent Decree. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

94. Upon entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between the United States and the Settling Party.

SO ORDERED THIS ___ DAY OF _____, 2016.

United States District Judge

Signature Page for Consent Decree regarding the Shieldalloy Metallurgical Corporation Superfund Site

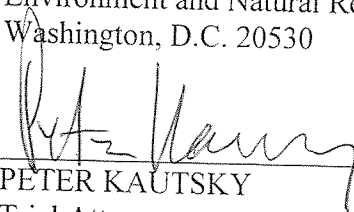
FOR THE UNITED STATES OF AMERICA:

Dated



ELLEN MAHAN
Deputy Section Chief
Environmental Enforcement Section
U.S. Department of Justice
Environment and Natural Resources Division
Washington, D.C. 20530

November 9, 2016
Dated



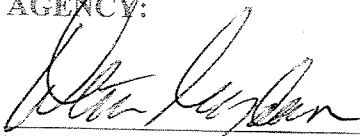
PETER KAUTSKY
Trial Attorney
U.S. Department of Justice
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Signature Page for Consent Decree regarding the Shieldalloy Metallurgical Corporation Superfund Site

9/28/2016

Dated

FOR THE ENVIRONMENTAL PROTECTION
AGENCY:



WALTER MUGDAN

Director, Emergency and Remedial Response Division
Region 2
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007

9/27/16

Dated




MICHAEL J. VAN ITALLIE

Assistant Regional Counsel
U.S. Environmental Protection Agency
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Signature Page for Consent Decree regarding the Shieldalloy Metallurgical Corporation Superfund Site

FOR SHIELDALLOY METALLURGICAL CORP.:

22 September 2016
Dated


Name (print): Dennis R. Shea
Title: Secretary & Director
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Agent Authorized to Accept Service on Behalf of Above-signed Party: Name: Dennis Shea, Esq.
Title: Vice President Legal – AMG Americas
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APPENDIX A

RECORD OF DECISION AMENDMENT

Shieldalloy Metallurgical Corporation Superfund Site
Newfield, Gloucester/Cumberland Counties, New Jersey

Operable Unit 1: Non-Perchlorate Groundwater



United States Environmental Protection Agency

Region II
September 2015



372863

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PART 1: DECLARATION

SITE NAME AND LOCATION

Shieldalloy Metallurgical Corporation Superfund site, (EPA ID# NJD002365930)
Borough of Newfield, Gloucester County and City of Vineland Cumberland County, New Jersey
Operable Unit 1 (OU1) – Remediation of Non-perchlorate Groundwater

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) Amendment documents the U.S. Environmental Protection Agency's (EPA's) selection of a change in the groundwater remedy which was originally selected for the Shieldalloy Metallurgical Corporation Superfund site in 1996 (1996 ROD). The original remedy was, and this ROD Amendment is, chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601 – 9675, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300. This decision document explains the factual and legal basis for selecting a remedy to address the contaminated groundwater at the site.

This decision was based on the Administrative Record, which has been developed in accordance with Section 113 (k) of CERCLA, and which is available for review at the Newfield Public Library, Newfield, New Jersey and at the EPA, Region 2, Superfund Records Center in New York, New York. The Administrative Record Index (Appendix III to this ROD Amendment) identifies each of the items comprising the Administrative Record upon which the selection of the amended remedial action is based.

The State of New Jersey Department of Environmental Protection (NJDEP) was consulted on the planned amended remedy in accordance with Section 121(f) of CERCLA, 42 U.S.C. § 9621(f), and NJDEP concurs with the amended remedy (see Appendix IV for the NJDEP Concurrence letter).

RATIONALE FOR AMENDMENT

The 1996 ROD selected the extraction and treatment of contaminated groundwater. This ROD Amendment changes this requirement and now requires *in-situ* remediation to address contaminated groundwater at the site. This ROD Amendment is based on information developed as part of an optimization study of the pump-and-treat system that was selected in the 1996 ROD. The November 2010 OU1 Optimization Study, approved by EPA in February 2011, concluded that “...*the pace of cleanup associated with the pump-and-treat system is slow (and getting slower), and that the unit cost of treatment is high and getting higher. Further, the current treatment system is highly energy intensive.*” More specifically, the study found that groundwater concentrations had been stable at asymptotic levels for over 10 years. This means that there has been no progress towards meeting cleanup goals. These findings led to the

modification of the existing treatment plant in 2011 through installation of an ion exchange system to improve operating efficiency. The findings also led to implementation of a pilot program to evaluate the effectiveness of *in-situ* (in-place) remediation technologies to expedite aquifer cleanup. The *in-situ* pilot program has included extensive studies, small and large-scale injections, and evaluation of monitored natural attenuation (MNA).

ASSESSMENT OF THE SITE

The response action selected in this ROD Amendment for OU1 is necessary to protect public health or welfare and the environment from actual or threatened releases of hazardous substances from the site into the environment.

DESCRIPTION OF THE SELECTED REMEDY AS AMENDED

The response action described in this document addresses OU1 non-perchlorate contamination in groundwater. OU2 addresses non-perchlorate contamination in soils, surface water and sediments. Perchlorate contamination, in all media, will be addressed in operable unit 3 (OU3). The ROD Amendment incorporates and builds upon earlier cleanup actions at the site.

The 1996 selected remedy consisted of installation of a network of extraction wells that captured contaminated groundwater that was transferred to a treatment system located at the SMC Facility. The extracted groundwater was then subjected to various treatment processes to remove volatile organic compounds (VOCs) and metal contaminants. The treated groundwater was then discharged to the surface waters of the Hudson Branch of the Maurice River.

The major components of this ROD Amendment include:

- Discontinuing the operation of the existing groundwater pump and treat system.
- Injecting calcium polysulfide (CPS) into the high concentration target portions of the aquifer to reduce chromium concentrations.
- Injecting emulsified vegetable oil (EVO) into the high concentration target portions of the aquifer to reduce VOC concentrations, particularly trichloroethene (TCE).
- Implementing long-term monitoring of groundwater to confirm the degradation of chlorinated VOCs, the reduction of hexavalent chromium and the attenuation of the VOC and chromium plumes through MNA. Long-term monitoring will include MNA parameters (discussed in the Decision Summary) and will evaluate the ongoing effectiveness of the active *in-situ* treatments. Metal contaminants beryllium and vanadium present a noncancer health hazard that will be addressed by MNA and long-term monitoring.
- Establishing institutional controls in the form of a classification exception area (CEA)/Well Restriction Area (WRA), to restrict groundwater use and prohibit activities

that could result in human exposure to beryllium, chromium, vanadium and VOCs in groundwater.

- Conducting a review of site conditions at least once every five years until the remediation goals are attained (policy review).

The amended remedy complies with EPA Region 2's Clean and Green Energy Policy. It supports the Green Remediation Principles by minimizing energy use, minimizing air emissions, and minimizing water use, and it is protective of the land and ecosystem.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA Section 121, 42 U.S.C. § 9621 in regard to the following:

Part 1: Statutory Requirements

The Selected Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective and utilizes permanent solutions and alternative treatment technologies (or resource recovery) to the maximum extent practicable.

Part 2: Statutory Preference for Treatment

In-situ chemical treatment and enhanced biodegradation satisfy the statutory preference for treatment as a principal element of the remedy and addresses high concentration contaminated saturated soil.

Part 3: Five-Year Review Requirements

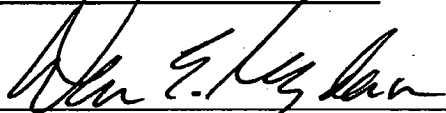
While this amended remedy will ultimately result in reduction of contaminant levels in groundwater to levels that would allow for unlimited use and unrestricted exposure, it will take longer than five years to achieve these levels. As a result, the site will be reviewed at least once every five years until such time as remedial action objectives (RAOs) and remediation goals are attained and human health and the environment are protected with unrestricted use.

ROD DATA CERTIFICATION CHECKLIST

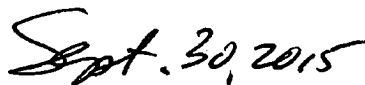
The following information is included in the Decision Summary section of this ROD Amendment. Additional information can be found in the administrative record file located in the information repositories for the site.

- Baseline risk represented by the chemicals of concern may be found in the “Summary of Site Risks” section;
- A discussion of cleanup levels for chemicals of concern may be found in the “Remedial Action Objectives” section;
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs are discussed in the “Description of Alternatives” section; and
- Key factors that led to selecting the amended remedy (i.e., how the selected remedy as amended provides the best balance of tradeoffs with respect to the balancing and modifying criteria) may be found in the “Comparative Analysis of Alternatives,” “Basis for the ROD Amendment” and “Statutory Determinations” sections.

AUTHORIZING SIGNATURE



Walter E. Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II



Date

PART2: DECISION SUMMARY

1.0 INTRODUCTION TO SITE AND STATEMENT OF PURPOSE

1.1 Site Name, Location and Description

The Shieldalloy Metallurgical Corporation (SMC) Superfund site is located at 35 South West Boulevard, in the Borough of Newfield, Gloucester County, New Jersey, with a small portion of the southwestern corner located in the City of Vineland, Cumberland County, New Jersey. See Figure 1 of Appendix I.

The site comprises two parcels, the “SMC facility” and the “farm parcel,” and the Hudson Branch, an intermittent stream that discharges into Burnt Mill Pond.

SMC Facility The larger parcel is approximately 67.5 acres in size. The coordinates of the center of the site are 39°32’27.6” North latitude and 75°01’06.7” West longitude. The facility is currently used by SMC as office space. Portions are also leased by SMC to various construction companies and to the Borough of Newfield for warehousing. The facility is secured by a locked perimeter chain link fence. The facility is bordered to the north by a rail spur and an inactive landfill; to the east by a wooded area, residences and small businesses; to the south by residences located along Weymouth Road; and to the west by Conrail rail lines, South West Boulevard, and various light industries and residences.

The SMC facility consists of four main areas, the *former production area*, *former lagoons area*, *eastern storage area* and *southern area*, as well as the *natural resource restoration areas*. Figure 2 of Appendix I is a current layout of the facility.

The *former production area* is approximately 22 acres and is the area where the majority of manufacturing activities occurred. This area is largely covered with buildings and asphalt or concrete pavement.

The *former lagoons area* occupies 4.5 acres. It includes nine lagoons that stored wastewaters and were closed by SMC between 1994 and 1997, with NJDEP oversight. Lagoon closure and remediation activities included sludge removal, liner removal, contaminated soil removal, post-excavation sampling, and backfilling. The *former lagoons area* is covered by a clean soil cover and light vegetation, which includes small trees and grass.

The *eastern storage area* had been used to store drums containing residues of manufacturing processes. A 1.3-acre portion of the *eastern storage area* is currently uncapped and covered with some gravel and concrete debris.

The *southern area* includes undeveloped areas, an on-site impoundment and the former thermal pond area. The on-site impoundment receives a combination of facility storm water and treated water from the on-site groundwater treatment system, pursuant to New Jersey Pollutant

Discharge Elimination System (NJPDES) permit requirements. The water from the on-site impoundment is directed into a ditch flowing toward the Hudson Branch. The on-site impoundment was installed by SMC in the early 2000s by excavating existing soils. The former thermal pond area covers 0.77 acres and consists of a rectangular depression, approximately three to five feet deep, that is covered with vegetation including grass and small trees. During facility operations, the former thermal pond was used as an emergency holding reservoir for treated wastewater. Several parcels within the *southern area* were developed and included in the *natural resource restoration areas* (discussed below). The remainder of the southern area is undeveloped and covered with a vegetated cap, grass and small trees.

The *natural resource restoration areas* are located in a non-contiguous collection of parcels around the facility, generally focused on the eastern and southern areas and total nearly 10 acres. Remediation and restoration of these areas was governed by a 1997 Settlement Agreement of Environmental Claims and Issues by and between SMC and the United States (on behalf of the EPA) and the State of New Jersey (on behalf of NJDEP). In 1999 and 2000, caps comprised of clean soil and vegetation, including a variety of grasses, flowers, trees and bushes, were constructed in these areas. These vegetative caps provide habitat value and eliminate the potential for exposure to contaminated soil.

Farm Parcel The smaller farm parcel is 19.8 acres of noncontiguous farmland in the City of Vineland approximately 2,000 feet southwest of the SMC facility. The farm parcel has never been used for manufacturing activities. It is considered part of the site because it is land that was purchased by SMC for implementation of the OU1 remedy.

Hudson Branch The Hudson Branch, an intermittent stream, runs along the southern edge of the SMC facility and discharges to Burnt Mill Pond.

While not part of the site, two pumping wells (RW6S and RW6D) associated with the site are located on the “car wash” parcel on Weymouth Road.

The SMC facility and farm parcel are zoned industrial. The future land use of the site is anticipated to remain consistent with its current zoning. The site is located in a mixed residential, agricultural, commercial, and light industrial area. The closest residences are approximately 100 feet south of the facility. Burnt Mill Pond is used for recreational purposes. Groundwater is the primary source of drinking water in the area.

1.2 Lead and Support Agencies

EPA is the lead agency and the NJDEP is the support agency.

1.3 Statement of Purpose

An Amendment to the September 24, 1996, Record of Decision (1996 ROD) is necessary because of a fundamental change to the extraction and treatment of contaminated groundwater of

the selected remedy. This ROD Amendment documents the basis for this fundamental change. This ROD Amendment is issued in accordance with Section 117 of CERCLA and 40 CFR 300.435(c)(2)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP).

1.4. Community Participation/Availability of Documents

In compliance with Section 117 of CERCLA and NCP Section 300.435(c)(2)(ii), on July 30, 2015, EPA released the Proposed Plan for the amendment of the cleanup of non-perchlorate groundwater to the public for comment. EPA made these documents available to the public in the administrative record repositories maintained at the EPA Region II office (290 Broadway, New York, New York 10007) and the Newfield Public Library, (115 Catawba Avenue, Newfield, New Jersey). EPA published a notice of availability for these documents in Vineland's *The Daily Journal* newspaper; posted the Proposed Plan on EPA's Region II website; and opened a public comment period on the documents from July 30, 2015, to August 28, 2015.

On August 12, 2015, EPA conducted a public meeting at the Newfield Borough Hall to inform local officials and interested citizens about the Superfund process, to review the completed and planned remedial activities at the site, and to respond to questions from area residents and other attendees. Responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see Appendix V).

The ROD Amendment and supporting documentation will become part of the Administrative Record for the site, in accordance with the NCP 40 CFR 300.825 (a)(2). The Administrative Record Index is presented in Appendix III to this ROD Amendment. Information pertinent to EPA's decision-making process in selecting the cleanup plan in this ROD Amendment is available for public viewing at the information repositories at the following locations:

Newfield Public Library
115 Catawba Avenue
Newfield, New Jersey, 08344
(856)697-0415
Hours: Monday through Friday 10:00 a.m.-7:00 p.m.,
Friday 10:10 am-5:00 pm, Saturday 10:00 am-5:00 pm

U.S EPA Region 2, Superfund Record Center
290 Broadway, 18th Floor
New York, New York 10007
(212)637-4308
Hours: Monday through Friday 9:00 a.m.-5:00 p.m.

Information is also available for review on-line at:
<http://www.epa.gov/region02/superfund/npl/shieldalloy>

2.0 SITE HISTORY AND CONTAMINATION, AND 1996 SELECTED REMEDY

2.1 Site History and Contamination

Specialty glass manufacturing began at the SMC facility in the early 1900s. SMC purchased the facility in the early 1950s. From 1955 to 2006, SMC manufactured specialty steel and super alloy additives, primary aluminum master alloys, metal carbides, powdered metals and optical surfacing products at the facility. Production processes also included chromium metal, chromium oxide, vanadium pentoxide, ferro-vanadium, uranium oxide, thorium oxide, ferro-columbium and columbium nickel. General facility operations, product spills and wastewater discharges contributed to the contamination of the site.

Chromium contamination of the groundwater was first detected by NJDEP in 1970 in a Borough of Newfield municipal well and a private well. As a result, NJDEP directed SMC to perform groundwater investigations to determine the extent of the chromium contamination and to develop an appropriate remedial action. SMC purchased the farm parcel in 1970 to construct a recovery well as part of the groundwater extraction and treatment system.

A groundwater pump-and-treat system began operating in 1979, pumping from W8 (a well at the south west corner of the SMC facility), and treating the groundwater via an old ion exchange system. Groundwater recovery was switched from well W8 to well W9 to obtain more appropriate hydraulic control in 1983. Treated water was discharged into an on-site, unnamed tributary of the Hudson Branch stream, under a NJPDES permit.

In 1984, NJDEP and SMC entered into an administrative consent order requiring SMC to investigate groundwater at the site and to address the plume of groundwater contamination. In 1988, NJDEP directed SMC to modify and upgrade its groundwater extraction and treatment system and to expand the groundwater monitoring program. Later in 1988, NJDEP and SMC signed a second administrative consent order requiring SMC to upgrade the groundwater extraction and treatment system, to perform a site-wide study of the soil, and to close nine lagoons. At NJDEP's direction, SMC also took a number of response actions that resulted in the excavation of the lagoons, the removal of above-ground and underground storage tanks, and the capping of the industrial areas of the site.

In 1989, four recovery wells were added to the pump-and-treat system to better capture the chromium plume. The four new wells were as follows: Layne (at the SMC facility), RW6S and RW6D (the "car wash" wells on Weymouth Road); and RIW2 (at the farm parcel). Also, in 1989, SMC expanded the treatment system to include an air stripper, to address the secondary contaminant of concern, TCE, which is also present in the groundwater. The chromium-treatment portion of the system was changed to electrochemical precipitation in 1991. Also, in 1991, SMC completed a remedial investigation. The remedial investigation (RI) indicated that the groundwater, soil, surface water and sediments were contaminated with VOCs and metals. Former wastewater treatment lagoons were the primary source of the chromium groundwater contamination. The primary source of the TCE groundwater contamination at the SMC Facility

was a former Manpro-Vibra Degreasing Unit. Supplemental RI activities were conducted in 1995 to delineate the extent of contamination. A feasibility study (FS) report was completed in 1996. In September 1996, the NJDEP issued a ROD for OU1 with EPA concurrence. The selected remedy includes modification of the existing groundwater remediation treatment system to optimize the capture of contaminated groundwater, air stripping to remove VOCs from the groundwater, electrochemical treatment with supplemental treatment methods, as needed, to remove inorganic contaminants, especially metals, and discharge of the treated groundwater to the surface waters of Hudson Branch.

In 2006, NJDEP entered into an administrative consent order with SMC and TRC Environmental Corporation (TRC), SMC's environmental consultant, for the completion of all Superfund cleanup activities at the site. The NJDEP was the lead agency for the site until 2008 when the lead was transferred to the EPA.

The EPA entered into an administrative order on consent (the 2010 Administrative Order) with SMC and TRC Environmental Corporation (TRC) in April 2010 to perform activities for OU1, including refining the delineation of the VOC plume. Under the oversight of EPA, TRC initiated the supplemental RI in January 2010, which included the installation and sampling of temporary and permanent wells. The draft final Supplemental RI report, which was approved by EPA in March 2014 concluded that delineation and characterization of the groundwater plume was complete.

The 2010 Administrative Order also requires TRC and SMC to perform certain response activities in connection with the other operable units at the site, OU2 and OU3. For OU2, TRC conducted a remedial investigation/feasibility study (RI/FS) that led to EPA issuing a ROD for OU2 on September 25, 2014. The OU2 ROD addresses soil, sediment and surface water for all contaminants except perchlorate. The OU2 remedy is currently in pre-remedial design phase. For OU3, the 2010 Administrative Order requires the completion by SMC of an RI/FS to address perchlorate at the site.

2.2 Original (1996) ROD Selected Remedy

In September 1996, the NJDEP issued a ROD for non-perchlorate groundwater for OU1, with EPA concurrence. The major components of the 1996 ROD are as follows:

- Modify the groundwater extraction system (using five extraction wells) to optimize the capture of contaminated groundwater;
- Air Stripping to remove volatile organic compounds from the recovered groundwater;
- Electrochemical treatment (rated at 400 gallons per minute) with Supplemental Treatment (as required) to remove inorganic contaminants, primarily chromium, from the recovered groundwater;
- Discharge of treated groundwater to surface waters of the Hudson Branch of the Maurice River; and
- Establishment of a Classification Exception Area (CEA).

3.0 BASIS FOR THE ROD AMENDMENT

An Amendment to the 1996 ROD is necessary because a fundamental change to the extraction and treatment of contaminated groundwater is needed. Since 1996, new information has been collected to support a change from the technology selected in the 1996 ROD.

This information is summarized as follows and discussed in more detail below:

- New information collected as part of an optimization study on the pump-and-treat system found that the groundwater pump-and-treat system provided reasonably good containment, but that concentration reduction rates had slowed to asymptotic conditions over the past 10 years.
- The nature and extent of contamination related to groundwater has been updated by the Supplemental Remedial Investigation.
- *In-situ* remediation treatability studies were conducted and implemented and were found to expedite aquifer cleanup beyond the abilities of pump-and-treat technologies to achieve cleanup goals faster.
- In addition to the *in-situ* treatment investigation, groundwater studies were performed to analyze whether and to what degree natural processes (referred to as “natural attenuation”) are reducing contaminant concentrations without active treatment. As discussed below, natural attenuation coupled with active treatment is an effective remedial component for this site.
- An updated risk assessment was conducted, which concluded that the concentrations of contaminants remaining continued to be associated with unacceptable levels of risk.

3.1 Optimization Study (2010)

In 2010, an optimization study was performed to evaluate the efficiency of the pump-and-treat system. The remediation system optimization evaluation focused on maximizing the efficiency of the pump-and-treat system, while maintaining protection of human health from exposure to site contaminants; expediting the cleanup; and identifying key steps to achieve the remedial RAOs defined in the OUI ROD.

Currently, approximately sixty monitoring wells exist throughout and downgradient of the site. Site groundwater data collected monthly over the past 20 years were reviewed for five pumping wells in three locations (SMC facility, car wash and farm parcel) to determine the ability of the pump-and-treat system to meet RAOs in a timely fashion. The data review focused on chromium as the primary contaminant of concern and TCE as the secondary contaminant of concern. The plume maps utilized for the optimization study are presented in Figures 3 and 4 for hexavalent chromium (deep aquifer) and TCE (deep aquifer), respectively. The figures also include the

locations of the pumping wells. The study found that the groundwater pump-and-treat system provided reasonably good containment, but that concentration reduction rates from the pump-and-treat system had slowed to asymptotic conditions since the year 2000. For example, hexavalent chromium concentrations at the SMC facility pumping wells and the car wash pumping wells were approximately 30,000 micrograms/liter ($\mu\text{g/L}$) in the 1980s but have leveled off at approximately 1,000 $\mu\text{g/L}$ for the past 10 years, compared to a remediation goal of 70 $\mu\text{g/L}$ (See Figures 5 and 6).

The results of the study concluded that the pump-and-treat system was slow, inefficient and not cost effective. The main treatment process, electrochemical precipitation, is extremely energy intensive, consuming as much electricity as 125 homes per day. These findings prompted the 2011 construction of a new replacement treatment plant with an ion exchange unit, which could provide over a 50% energy savings. The results of the optimization study also suggested that treatability studies be performed to evaluate the effectiveness of *in-situ* remedial technologies. Such technologies were expected to be more efficient and cost-effective and to expedite aquifer cleanup to achieve the RAOs faster than the pump-and-treat system. Because *in-situ* technologies can foster conditions suitable for MNA, a detailed MNA study was also recommended in conjunction with the *in-situ* pilot treatability program.

3.2 OU1 Supplemental Remedial Investigation (2010)

The OU1 Supplemental RI activities included the installation and sampling of temporary wells and permanent wells. The temporary wells were sampled at multiple vertical intervals (so these locations are referred to as vertical profiling, or VP, points).

Twenty VP samples, four piezometer samples and two monitoring well samples were collected as part of the 2010 supplemental remedial investigation. The analytical results associated with the vertical groundwater profiling effort at the site are presented in Table 1. The analytical results associated with the piezometer sampling and monitoring well sampling are presented in Tables 2 and 3, respectively, and are depicted on Figure 7. The groundwater samples were analyzed for metals (total chromium, hexavalent chromium) and VOCs.

Chromium

The 2010 supplemental remedial investigation identified a chromium groundwater plume extending from the SMC facility, past the car wash, to the farm parcel in both hexavalent and trivalent forms exceeding applicable drinking water standards. New Jersey groundwater quality standard (GWQS) for total chromium is 70 $\mu\text{g/L}$, and the Federal maximum contaminant level (MCL) for total chromium (the sum of all forms of chromium) is 100 $\mu\text{g/L}$. The chromium plume is approximately a half mile long and 100 to 400 feet wide. The chromium plume was generally broader at the SMC facility (because of the former sources), and narrower at the farm parcel, consistent with the fate and transport nature of the plume in a sandy aquifer. The total chromium plume for both the shallow (30 to 70 feet below ground surface) and deep groundwater aquifer zones (70 to 130 feet below ground surface) are included as Figures 8A and 8B.

Volatile Organic Compounds (VOCs)

VOCs detected during the 2010 supplemental investigation included: chloroform; 1,4-dichlorobenzene; 1,1-dichloroethane; 1,1-dichloroethene (1,1-DCE); 1,2-DCE; 1,1,1-trichloroethane; TCE; and tetrachloroethene (PCE). Three of the nine VOCs, TCE, PCE and 1,1-DCE, were detected above MCLs or GWQs and are discussed below.

TCE

A TCE plume in the shallow groundwater aquifer zone is approximately 1,000 feet long, extending from the SMC facility near the former degreasing unit toward the car wash pumping wells, and is 500 feet wide. The highest concentration of TCE detected in the shallow zone is 207 µg/L, compared to the New Jersey MCL and GWQS of 1 µg/L and federal MCL of 5 µg/L.

A TCE plume in the deep aquifer zone extends approximately 10,000 feet from the SMC facility to beyond the farm parcel and is approximately 1 mile wide, with the highest concentration detected near the SMC facility at MW-SC34D of 50 µg/L. The TCE concentrations at the SMC facility are either stable or decreasing. Much of the deep TCE plume is relatively diffuse, with concentration ranges below 10 µg/L.

The sandy nature of the shallow and deep groundwater aquifer zones would ordinarily yield long, narrow plumes, as found in the shallow TCE plume. The data suggest that non-site-related TCE has contributed to the atypical width of the deep TCE plume; while no other TCE sources have been identified, the shape of the plume suggests that other TCE sources may have contributed to the plume. Based on the data collected, the VOC plume in the deep zone of the aquifer was determined to be from both the site and from other non-SMC sources, that appear to have been present immediately downgradient of the SMC facility proximate to Weymouth Road. These other sources appear to have released TCE, PCE, and other chlorinated VOCs. In the 1980s, NJDEP identified a number of potential sources of chlorinated VOCs in North Vineland, but concluded that none were worthy of further investigation. The OU1 supplemental remedial investigation generally supports this earlier conclusion, as none of the downgradient chlorinated VOC concentrations suggest the presence of a secondary residual source.

Because of its characteristics of low viscosity and higher density than water, the TCE plume migrates to lower depths as it moves downgradient. At this site, it has resulted in a layer of uncontaminated groundwater above the plume. This uncontaminated groundwater lens prevents volatilization and vapor intrusion from the TCE plume.

The TCE plume map for the shallow and deep groundwater aquifer zones are shown in Figures 9A and 9B, respectively.

PCE

PCE, a constituent not used by SMC, was present throughout the footprint of the TCE plume downgradient of the SMC facility, ranging from non-detect to 38 µg/L. PCE was not detected at the SMC facility. The PCE plume appears to be located in two general areas southwest and southeast of the SMC facility. The area southwest of the site represents the most significant PCE plume, which extends from the car wash area towards the west-southwest for nearly one and a half (1.5) miles. The PCE plume located southeast of the SMC facility is much smaller in areal extent and consists of much lower concentrations (maximum of 1.1 µg/L); it appears to be originating from an unknown source located east of the SMC facility. The highest PCE concentrations are found in the shallow groundwater aquifer in the car wash area (114 µg/L) and in the deep aquifer at the downgradient VP-3 location (38.6 µg/L at a depth of 95 to 100 feet below ground surface). The GWQS for PCE is 1 µg/L, and the federal MCL is 5 µg/L.

1,1-DCE

The only other chlorinated VOC detected in the groundwater at concentrations in excess of its respective GWQS (but not its MCL) was 1,1-DCE. 1,1-DCE was detected at two vertical profile samples, VP-16 (3 µg/L at a depth of 20 to 24 feet below ground surface) and VP-17 (2.5 µg/L at 45 to 49 feet below ground surface). The GWQS for 1,1-DCE is 1 µg/L, and the federal MCL is 7 µg/L.

3.3 *In-situ* Remediation Treatability Studies (2010-2014)

***In-situ* Remediation Program Overview**

Based on the conclusions from the 2010 optimization study, the *in-situ* remediation pilot program goals were established to validate laboratory studies with progressively larger scale field injections in order to validate the *in-situ* remediation technology, reduce concentrations, reduce the time to cleanup, and foster natural attenuation. Bench-scale tests were conducted to evaluate a variety of *in-situ* remediation injection substances for chromium and TCE. For treatment of chromium, the primary contaminant of concern (COC), treatability testing results indicated that calcium polysulfide (CPS) would be an effective reagent to treat chromium-impacted groundwater. CPS was injected into the subsurface through wells to create a reducing (no oxygen) environment promoting the conversion of hexavalent chromium to the less toxic and less mobile trivalent chromium form and facilitating its precipitation as an insoluble solid.

For treatment of the secondary groundwater contaminant, TCE, treatability testing results indicated that emulsified vegetable oil (EVO) would be an effective amendment to treat TCE-impacted groundwater. EVO fosters biological transformation by providing microbes a carbon “food source” and an electron donor for respiration of TCE. These specialized microbes aid in the reductive dechlorination of TCE to harmless end products (*e.g.*, ethene and/or carbon dioxide). CPS and EVO injection tests targeting “single well” areas were conducted in 2010.

Years 2011 through 2014 included broader-scale and iterative CPS pilot test injections. Also, EVO injections to address TCE were performed in 2011.

The conceptual remedial scheme for chromium treatment included the installation of rows of injection wells perpendicular to groundwater flow (see Figure 10). The distance between injection rows was modeled for effective treatment of chromium between injection rows. CPS injected into the injection wells created an immediate reactive zone in and around the injection wells, and then CPS and geochemical changes “sweep” through downgradient aquifer treatment zones. This process is designed to dramatically shift the subsurface environment to both reduce dissolved chromium concentrations and foster long-term reductions in concentration via enhanced natural attenuation. Geochemical adjustments include creating favorable oxidation-reduction potential, favorable pH, and favorable dissolved oxygen conditions. Injections also release naturally occurring iron present in the soil into the groundwater from the aquifer matrix, which can further accelerate the reduction and precipitation of chromium. The CPS remains reactive for chromium remediation for a number of years. The *in-situ* pilot program included analysis of how long the CPS remains active in the subsurface, and how long after injection this “active remediation” would be expected to continue. To date, approximately 3.9 million pounds of 29% CPS solution have been injected into a network of over 100 injection wells, with a monitoring network of approximately 100 monitoring wells. Much of the plume is still under active remediation as a result of these injections.

In 2011, an EVO injection and a bioaugmentation pilot program on the SMC facility was applied, and appears to have remediated the on-site source zone area for TCE near MW-SC-20S and the former degreasing unit. Where the CPS is best injected in a line of wells perpendicular to groundwater flow, EVO injections work best to address the site source area via injection of a grid of temporary well points. Similar to CPS, the EVO creates a reactive and reducing zone where degradation of contaminants may be fostered for several years.

In-situ Remediation Results

CPS was injected into the subsurface of high chromium-concentration areas of the SMC facility, the car wash and the farm parcel. Following treatment, chromium concentrations decreased by 98%-100% in many SMC facility monitoring wells. Average total chromium groundwater concentrations declined from 4,490 µg/L to 140 µg/L, and hexavalent chromium concentrations declined from 2,130 µg/L to 13 µg/L. At the farm parcel, CPS injections reduced total chromium concentrations from 5,024 µg/L to 347 µg/L. Near the car wash, CPS injections reduced total chromium concentrations from 1,144 µg/L to 196 µg/L. Overall, the plume footprint was reduced by more than 50 percent. See Figures 11 and 12 for three-dimensional representations depicting the chromium plume before and after injection of CPS. Due to the length of time that CPS remains in the system and is available to treat chromium, there is some evidence that the benefits of the CPS injections may continue for 5 to 10 years for the shallow groundwater aquifer zone and up to 20 to 35 years for the deep aquifer zone. In addition, as discussed below, the natural attenuation capacity of the aquifer is enhanced by CPS injections by mobilizing native iron (an electron donor) and improving geochemical conditions amenable to natural attenuation.

The EVO injections in the shallow groundwater aquifer zone at the SMC facility reduced TCE concentrations from 207 µg/L in 2010 to non-detect in 2012 and 2013. In some cases, VOC plumes rebound to pretreatment levels as the temporary effects of an *in-situ* treatment diminish; however, the non-detect results reported for the shallow groundwater aquifer zone over the two-year period strongly indicates that the concentration reduction is both permanent and stable. Figures 13 and 14 depict the TCE plumes after injection of EVO for the shallow and deep groundwater aquifer zones.

Both *in-situ* treatment programs successfully reduced contaminant concentrations significantly and have done so in a relatively short time frame. There is also evidence that the improvements are expected to be enduring, and that active remediation from the injections already performed will continue *in situ* for as much as three decades. *In-situ* remediation achieved up to a 60-fold reduction in plume concentration and has shrunk the overall size of the plumes after only nine months of injections, whereas the pump-and-treat system has achieved only a 2-fold reduction of contaminant concentrations in 20 years.

3.4 Assessment of Monitored Natural Attenuation (MNA) (2012-2014)

Various chemical and physical processes, collectively referred to as “natural attenuation,” may be present at a site and result in reduced contaminant concentrations over time without further active remedial measures. EPA can select monitored natural attention (MNA), either as a remedial component or as a stand-alone remedy, if site-specific investigations identify that natural attenuation is occurring, that it is sustainable over time, and that the time frames for natural attenuation to reach remediation goals are comparable to active remedial measures appropriate for the site.

Consistent with EPA protocols, a four-tier analysis was conducted to evaluate whether and to what degree natural attenuation of site contaminants is occurring in the groundwater. Tier I is a demonstration of plume stability and attenuation; Tier II is an evaluation to determine the mechanism(s) and rate of attenuation; Tier III is an evaluation to determine the capacity and stability of the attenuation mechanisms; and Tier IV, after a remedy is selected that includes MNA, is the implementation of a long-term performance monitoring program to demonstrate that MNA is performing as predicted.

The Tier I evaluation showed that the contaminant plumes on site are stable or shrinking and the aquifer conditions are conducive to ongoing contaminant degradation, which support the viability of MNA. The Tier II evaluation confirmed that the primary mechanism for chromium attenuation processes are sorption onto iron oxide (and potentially clay minerals) in the aquifer and reduction/precipitation reactions with native iron. Iron found in the aquifer can reduce highly soluble (and more toxic) hexavalent chromium to generally insoluble (and less toxic) trivalent chromium.

The Tier II evaluation also found that biodegradation, sorption, and dispersion are the primary mechanism for chlorinated VOC degradation. Dissolved oxygen concentrations were found to be

anoxic, which is favorable for VOC biodegradation. Low redox potential (<50 mv) is favorable to VOC degradation.

The mechanism and rate of natural attenuation calculated under Tier II for both chromium and chlorinated VOCs support the viability of MNA as a remedial component.

The Tier III assessment demonstrated that the aquifer has adequate capacity to attenuate the remaining contamination. The evaluation of both site stability during treatability testing, and site aquifer geochemistry support the viability of MNA. Modeling concluded that natural attenuation is viable for the site and that sentinel wells (select wells downgradient on the site) would be expected to remain below MCLs or GWQS over time.

A Tier IV monitoring plan was submitted in August 2014 and conditionally approved by EPA.

3.5 Beryllium and Vanadium Investigations (OU1 and OU2)

The potential for OU2 soils to act as a continuing source of groundwater contamination was evaluated as part of the OU2 supplemental remedial investigation by comparing facility soils data to generic NJDEP Impact to Groundwater (IGW) values. The comparison indicated that the concentrations of beryllium exceeded the IGW value and was found to be affecting groundwater locally near the SMC facility; however, data collected downgradient of the SMC facility and upgradient of the farm parcel showed that concentrations in groundwater of beryllium are below the GWQS, indicating that it is naturally attenuating. Vanadium does not have an NJDEP IGW value; however, the potential for vanadium to migrate through soil and into groundwater was also evaluated, due to the presence of vanadium in site soils and elevated concentrations of vanadium historically detected in groundwater in localized areas beneath the SMC facility. Recent sampling data shows that vanadium in the shallow groundwater aquifer zone immediately downgradient of the SMC facility was either not detected or was present at concentrations below the EPA risk-based tap water screening levels for vanadium compounds¹. Further, beryllium and vanadium were sampled in select wells during the April 2015 sampling event and no exceedances of the GWQS were detected, confirming the RI conclusions that the footprint is very small.

3.6 Updated Risk Assessment

The 1995 human health risk assessment (HHRA) evaluated potential current/future risks to adult residents, adult industrial workers, and adult construction workers who could come in contact with contaminated groundwater. In 2015, an OU1 Risk Update was performed to assess the change in calculated cancer risks and noncancer health hazards based on changes in toxicity values for some COCs. The reasonably anticipated future land use for the site is the same as its current commercial/industrial land use.

¹ The EPA tap water screening number for vanadium compounds is lower (more conservative) than the screening number of vanadium pentoxide, so the analysis was based on vanadium compounds, to be conservative.

An ecological risk assessment for OUI was not completed because no exposure pathways were identified for ecological receptors to come into contact with contaminated groundwater.

Human Health Risk Assessment

As part of the supplemental remedial investigation that led to this ROD Amendment, a four-step human health risk assessment process was used for assessing site-related cancer risks and noncancer health hazards. The four-step process is comprised of Hazard Identification of Chemicals of Potential Concern (COPCs), Exposure Assessment, Toxicity Assessment and Risk Characterization.

In the 2015 OUI Risk Update, the following pathways were evaluated: current/future resident exposure via ingestion of groundwater and dermal contact with groundwater from private wells (shallow/deep). Cancer risks were calculated to be unacceptable for the adult resident (4×10^{-4} in shallow groundwater aquifer zone; 6×10^{-3} in deep groundwater aquifer zone) and for the child resident (2×10^{-4} in shallow groundwater aquifer zone; 3×10^{-3} in deep groundwater aquifer zone). The sole cancer risk driver is hexavalent chromium. TCE was not evaluated in the 2015 OUI Risk Update, however, response action is warranted for TCE under CERLCA because groundwater at the site is a potential source of drinking water and TCE was detected in excess of both Federal and State MCLs.

Noncancer health hazards were calculated to be unacceptable for three metals for the future adult exposed to shallow groundwater and deep groundwater aquifer zones and to the future child exposed to shallow groundwater and deep groundwater aquifer zones, as follows:

		Beryllium	Chromium (IV)	Vanadium
Adult	Shallow aquifer zone	16		18
	Deep aquifer zone		14	2
Child	Shallow aquifer zone	23		28
	Deep aquifer zone		22	3

The 1995 HHRA and 2015 Risk Update concluded that cancer risks and noncancer health hazards from exposure to site-related groundwater are unacceptable for residents under a hypothetical potential future use scenario. Residents currently do not drink the groundwater impacted by site contaminants; however, Superfund requires that exposures be calculated assuming that no additional action is taken at the site, as a conservative and protective analysis.

In response to the new information summarized here, TRC developed new alternatives that were evaluated in a focused feasibility study (FFS).

4.0 REMEDIAL ACTION OBJECTIVES

After considering potential changes in applicable or relevant and appropriate requirements (ARARs) for groundwater that may have occurred since 1996, the RAOs that were identified in the 1996 ROD are still appropriate and are identified below:

- Prevent exposure, due to groundwater ingestion, to groundwater contaminants attributable to the SMC facility which have been detected at levels exceeding ARARs;
- Prevent migration of groundwater contamination; and
- Remediate the groundwater contamination attributable to the SMC facility to achieve ARARs.

Remediation Goals

Remediation goals were developed to protect human health and the environment and thereby address the unacceptable risks identified in the updated risk assessment. Remediation goals for groundwater were developed to meet the site-specific RAOs, and are the more stringent of the federal MCLs and the State MCLs and GWQS, which are the ARARs identified for the site.

Constituent in Groundwater	Remediation Goal (µg/L)
Beryllium	1
1,1-DCE	2
TCE	1
Total Chromium	70
Vanadium	60

EPA has concluded that ecological remediation goals are not required for groundwater, and that vapor intrusion is not expected to be an area of concern for the remaining VOC plumes. Please refer to Section 3 of this Decision Summary for the basis of these conclusions.

5.0 DESCRIPTION OF ALTERNATIVES FOR ROD AMENDMENT

Two components of the 1996 ROD, the need for institutional controls and five-year reviews, remain unchanged; however, they are discussed in the context of each of the alternatives.

Alternative 1: No Further Action

The no action alternative is required by the NCP and EPA guidance as a baseline with which to compare the other remedial action alternatives. Alternative 1 is not protective of human health and the environment because it does not include any measures to prevent ingestion of contaminated groundwater, reduce the cancer risks and noncancer health hazards, or restore the groundwater. Therefore, this alternative will not be evaluated in the comparative analysis section, below.

Alternative 2: Groundwater Extraction, Treatment (Pump-and-Treat), Discharge (1996 ROD) Institutional Controls, Long-Term Monitoring and Five-Year Reviews

Alternative 2 is the remedy selected in the 1996 ROD, which is the groundwater pump-and-treat system that operated from 1989 to 2013. For purposes of alternative planning and evaluation, it is assumed that pumping rates will be consistent with the rates required in the ROD. It is possible that pumping rates could be reduced, or that the system could be operated in a pulsed-manner (which could reduce O&M costs, to a degree) but there is no data available to select an alternative rate as a basis for cost estimation.

- Groundwater Extraction-Five extraction wells installed in the shallow and deep groundwater aquifer zones, pumping an estimated 400 gallons per minute to capture contaminated groundwater. The wells are located at the following locations: Two wells on the SMC facility, two wells on the car wash parcel and one well at the farm parcel.
- Groundwater Treatment- Air stripping to remove VOCs from the recovered groundwater, electrochemical precipitation treatment (more recently modified to ion exchange) to remove chromium from the recovered groundwater. The treated groundwater is then discharged to the surface waters of the Hudson Branch of the Maurice River pursuant with a NJPDES permit.
- Institutional controls- Use of contaminated groundwater is prohibited through the use of an existing well restriction area (WRA). A classification exception area (CEA) was selected to be established by NJDEP. The CEA defines the area of the aquifer that is and will continue to be impacted above federal MCLs or more stringent State standards; the CEA would remain in effect until contaminant concentrations have decreased to below these standards. The establishment of the WRA may require mandatory connection with the public water system for existing or potential future potable water users.
- Long-term Monitoring – Groundwater would continue to be monitored, similar to the data collected monthly over the past 20 years (semiannually since 2010) to assess contaminant status and to verify that contaminated groundwater is not migrating beyond the capture zone of the extraction wells.

- Five-Year Reviews – Because contaminants are present on the site above levels that allow for unrestricted use and unlimited exposure, a review of site groundwater conditions would be required at least once every five years until the GWQS are met.

The estimated cost to implement the 1996 ROD remedy for OU1 was \$9.4 million in 1996 dollars, which is approximately equivalent to \$27.1 million in 2015 dollars when adjusted for inflation.

Alternative 3: *In-Situ* Remediation, Monitored Natural Attenuation, Institutional Controls, Long-Term Monitoring and Five-Year Reviews

Alternative 3 includes active *in-situ* treatment of chromium and chlorinated VOCs in the shallow and deep groundwater aquifer zones at the SMC facility, farm parcel and car wash area, and MNA in the remainder of the shallow and deep groundwater plumes. Much of the active remediation to be performed under this alternative has already implemented through the *in-situ* remediation pilot study from 2010 to 2014, as described above.

- *In-Situ* Remediation-Treatment reagents are injected into the groundwater to target the area of the aquifer with the highest concentrations of chromium and TCE. For chromium, the injection of CPS, and for TCE, the injection of EVO, reduce concentrations within the shallow and deep aquifers. Continued contaminant reduction long after the initial injections is expected, and based upon site-specific data, in many areas of the site, active remediation is ongoing. In addition to the reactive stage of the CPS and EVO treatments, these *in-situ* treatments appear to support aquifer conditions favorable to MNA.
- Monitored Natural Attenuation- *In-situ* treatment is effective above certain concentration ranges but has diminishing effectiveness in the diffuse fringes of the plume, and, for the areas actively treated, when the residual concentrations remaining are very low (e.g., less than 10 to 25 µg/L for TCE). Based upon site-specific studies, after implementation of the active (*in-situ*) treatment, contaminants in the groundwater will continue to gradually diminish over time as the result of natural ongoing biological and geochemical processes. The viability of MNA to further reduce concentrations and meet remediation goals has been demonstrated.
- Institutional Controls - Similar to Alternative 2, institutional controls in the form of a CEA/WRA would be implemented to prevent exposure to contaminated groundwater.
- Long-Term Monitoring- Monitoring of groundwater to verify that MNA for hexavalent chromium and chlorinated VOCs is proceeding as expected, and that beryllium and vanadium concentrations continue to diminish. Monitoring over time would verify the reduction of the VOC and chromium plumes to ensure that these constituents are not migrating, monitor MNA parameters, and evaluate the ongoing effectiveness of active treatment. Long-term monitoring would include the establishment of sentinel wells downgradient of the site to ensure that the plume is not expanding.

- Five-Year Reviews – Similar to Alternative 2, because contaminants are present on the site above levels that allow for unrestricted use and unlimited exposure, a review of site groundwater conditions is required at least once every five years, until the RAOs and remediation goals are met.

The estimated cost is \$9.1 million, of which \$8.8 million has already been spent to implement the *in-situ* injection program.

5.1 Change in Expected Outcome

Both the 1996 ROD and the ROD Amendment theoretically reach the same end result with respect to groundwater: reducing contaminant levels to the federal MCLs and State standards. As a result, there is no change to the expected outcome that will result from this ROD Amendment. However, the amended remedy will be used to remediate contaminated groundwater and will restore the aquifer as a potential source of drinking water in a shorter time period than the 1996 ROD.

6.0 COMPARATIVE ANALYSIS

A comparative evaluation of the change described in this amendment with the 1996 Operable Unit 1 ROD was conducted employing the nine criteria defined in the NCP as the framework for identifying technical and administrative differences for consideration. Because this is an Amendment to the 1996 ROD, only that part of the remedial action which is proposed for change (the pump-and-treat system vs. *in situ* treatment, long-term monitoring, and MNA) is evaluated in this section. Those portions (institutional controls and five-year reviews) of the 1996 ROD which are not being changed remain in effect under the 1996 ROD.

The nine criteria are summarized as follows:

Threshold Criteria

The two threshold criteria described below must be met in order for the alternatives to be eligible for selection in accordance with the NCP.

1. Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.
2. Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether or not a remedy will meet all of the ARARs of other Federal and State environmental laws and/or provide grounds for involving a waiver.

Primary Balancing Criteria

The following five criteria are utilized to compare and evaluate the elements of one alternative to another that meet the threshold criteria.

3. Long-term effectiveness and permanence addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.
4. Reduction of toxicity, mobility, or volume through treatment addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the site.
5. Short-term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.
6. Implementability addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
7. Cost includes estimated capital and Operation and Maintenance ("O&M") costs, as well as present-value costs.

Modifying Criteria

The modifying criteria are used on the final evaluation of remedial alternatives generally after EPA has received public comment on the Proposed Plan.

8. State Acceptance addresses the State's position and key concerns related to the preferred alternative and other alternatives, and the State's comments on ARARs or the proposed use of waivers.
9. Community Acceptance addresses the public's general response to the alternatives described in the Proposed Plan.
1. *Overall protection of human health and the environment.*

The original remedy (Alternative 2) provides overall protection of human health and the environment through the extraction and treatment of contaminated groundwater until the RAOs are attained. This remedy also prevents the potential for further migration of contaminated groundwater to potential downgradient receptors.

Alternative 3 provides overall protection of human health and the environment by chemical reduction of hexavalent chromium and enhanced biodegradation of chlorinated VOCs in groundwater to meet the RAOs. *In-situ* injections, including those already performed, are expected to address the high concentration areas of the groundwater plume and, when combined

with MNA, will attain the RAOs sooner than Alternative 3. Elimination of the high concentrations of VOCs and chromium will also result in the faster natural attenuation of contaminants in the remainder of the groundwater plumes. Modeled predictions of plume performance indicate that the plume will not expand further and can be expected to start to contract now that the highest groundwater concentrations have been removed.

2. *Compliance with Applicable or Relevant and Appropriate (ARARs).*

The 1996 selected remedy would achieve ARARs including the chemical-specific ARARs for groundwater, which are the New Jersey MCLs (N.J.A.C. 7:10) and GWQS (N.J.A.C. 7:9C), and the federal MCLs published under the Safe Drinking Water Act (40 CFR 141.11-16 and 141.60-63). The 1996 selected remedy would also achieve action specific ARARs pertaining to discharge to surface water, which are the Ambient Water Quality Criteria (40 CFR 131.36(b)(1)) and the NJPDES Permit/Discharge Requirements (N.J.A.C. 7:14A-2.1). In addition, action-specific ARARs include the New Jersey Water Pollution Control Act Ground Water Quality Standards (N.J.A.C. 7:9C) procedures and standards for the establishment of a Classification Exception Area.

Alternative 3 would also achieve the chemical-specific ARARs. The action-specific ARARs pertaining to groundwater discharge to surface water would no longer apply.

3. *Long-Term Effectiveness and Permanence.*

The 1996 selected remedy provides permanent reduction in the contaminant mass and, therefore, will reduce risks to acceptable levels in the long term. This alternative uses physical groundwater extraction and treatment to permanently decrease contaminant concentrations in the groundwater aquifer until RAOs are attained.

Alternative 3 is preferred because it would offer equivalent long-term effectiveness but achieve the RAOs more quickly, as the *in-situ* remediation treatability studies already have been demonstrated to substantially reduce contamination.

4. *Reduction of Contaminant Toxicity, Mobility or Volume Through Treatment.*

For Alternative 2, pumping for plume containment would reduce the mobility of contaminants in groundwater and ensure that no new areas become contaminated. The volume of contaminated groundwater would not be expected to be reduced except after a very long time period.

Alternative 3 includes chemical treatment of the groundwater plume mass coupled enhanced biodegradation to reduce toxicity, mobility, and volume. As demonstrated by the treatability studies, the amended remedy through the *in-situ* remediation treatment by injections of CPS and EVO, was very successful in substantially reducing the toxicity, mobility and volume of contaminants in groundwater in a much shorter time frame.

5. *Short-Term Effectiveness.*

Although pump-and-treat technologies have been successfully implemented at other sites, site-specific conditions (e.g., geochemistry, aquifer conditions, type of contaminants) have resulted in the pump-and-treat system reaching asymptotic levels in the aquifer after almost 20 years of pumping. Preliminary modeling of Alternative 2 indicates that RAOs will not be met for hundreds of years.

Alternative 2 was effective in the short-term. This Alternative was proven to have minimal potential risks or hazards associated with it.

Alternative 3 is effective in the short-term. This alternative, which more aggressively treats the contamination via the *in-situ* injections, is expected to achieve RAOs more quickly than the pump-and-treat remedy, which, as stated previously, is no longer efficiently reducing groundwater concentrations. The minimal potential risks associated with implementing this alternative can be reduced using administrative and engineering control, health and safety measures, and proper personal protective equipment. Based on preliminary modeling, Alternative 3 is estimated to achieve the RAOs and remediation goals in substantially less time than Alternative 2.

6. *Implementability.*

Alternative 2 was considered implementable at the time of the original decision. More than 25 years of experience with this remedy has demonstrated its overall implementability. However, the pump-and-treat operation produces a significant amount of waste sludge, which must be sent to a landfill off-site.

In-situ remediation associated with Alternative 3 has been demonstrated to be implementable with the injections performed as part of treatability studies conducted from 2010 to 2014. This alternative has significantly lower energy demands with very little waste generated.

7. *Cost.*

The estimated cost to implement the 1996 ROD remedy for OU1 was \$9.4 million in 1996 dollars (\$27.1 million in 2015 dollars).

<i>Capital cost</i>	<i>Annual Costs</i>	<i>Present Worth</i>
<i>\$1,600,000</i>	<i>\$850,000</i>	<i>\$27,050,000</i>

The estimated capital, annual O&M, and present-worth costs are presented below for Alternative 3. Alternative 3 is more cost effective than the 1996 remedy. The \$8.8 million in capital phase costs has already been expended to complete the pilot *in-situ* injection program.

<i>Capital cost</i>	<i>O&M Costs</i>	<i>Present Worth</i>
\$8,800,000	\$325,000,	\$9,125,000

8. *State Acceptance.*

The State of New Jersey concurs with the amended remedy. Support agency comments were addressed informally through the consultation process, prior to the issuance of this ROD Amendment. A copy of the state concurrence letter is attached as Appendix IV.

9. *Community Acceptance.*

Appendix IV, the Responsiveness Summary to the ROD Amendment provides responses to specific comments received during the 30-day public comment period.

7.0 **SELECTED REMEDY**

Based upon the requirements of CERCLA, the results of the site investigations, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative 3 satisfies the requirements of Section 121 of CERCLA, 42 U.S.C. § 9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, 40 CFR § 300.430(e)(9).

The major components of this ROD Amendment include:

- Discontinuing the operation of the existing groundwater pump and treat system.
- Injecting calcium polysulfide (CPS) into the high concentration target portions of the aquifer to reduce chromium concentrations.
- Injecting emulsified vegetable oil (EVO) into the high concentration target portions of the aquifer to reduce VOC concentrations, in particular TCE.
- Implementing long-term monitoring of groundwater to confirm the degradation of chlorinated VOCs, the reduction of hexavalent chromium and the attenuation of the VOC and chromium plumes through MNA. Long-term monitoring will include MNA parameters and will evaluate the ongoing effectiveness of the active *in-situ* treatments. Metal contaminants beryllium and vanadium present a noncancer health hazard that will be addressed by MNA and long-term monitoring.
- Establishing institutional controls in the form of classification exception area (CEA)/Well Restriction Area (WRA), to restrict the groundwater use and prohibit activities that could result in human exposure to beryllium, chromium, vanadium and VOCs in groundwater.

- Reviewing site conditions at least once every five years, as required by CERCLA, until the RAOs and remediation goals are met.

Active remediation derived from the *in-situ* CPS treatment for chromium is ongoing, and is expected to continue at the SMC facility and the portions of the plume between the SMC facility and the farm parcel, for 10 to 35 years. The source of TCE in the shallow groundwater aquifer at the SMC facility appears to have been remediated through *in-situ* EVO treatments.

The Selected Remedy expects that contaminant concentrations in the untreated portions of the aquifer and then within the active treatment zone after *in-situ* treatment is no longer actively treating the COCs, will gradually diminish over time through natural attenuation. Both biotic and abiotic natural degradation processes will gradually attenuate the contaminant mass over an extended period, until all groundwater concentrations are decreased to below remediation goals.

In the event that monitoring data, such as concentration trends, are inconsistent with the trends predicted for residual concentrations in the August 2014 MNA monitoring plan, or if exceedances of the remediation goals (e.g., 70 µg/L for total chromium, 1 µg/L for TCE) are found at sentinel wells, additional actions may be required. Under the August 2014 MNA monitoring plan, these conditions would require the recommendation of additional steps for implementation, such as further sampling or modeling, or additional *in-situ* injections.

8.0 STATUTORY DETERMINATIONS

As was previously noted, CERCLA §121(b)(1) mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA §121(d) further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4). The following sections discuss how this ROD Amendment meets these legal requirements, is consistent with CERCLA Section 121 and, to the extent practicable, the NCP. This ROD Amendment is protective of human health and the environment, attains ARARs, and is cost-effective.

8.1 Protection of Human Health and the Environment

The amended remedy will be protective of human health and the environment by eliminating, reducing, or controlling exposures to human health and the environment through treatment, institutional controls, and long-term monitoring. More specifically, *in-situ* remediation has and will continue to decrease contaminant mass in the groundwater plume, after which natural attenuation will gradually decrease contaminant levels to meet the RAOs and remediation goals. Institutional controls and long-term monitoring will reduce the threat posed by the potential use of contaminated groundwater until the RAOs and remediation goals are reached.

The remedy selected in this ROD Amendment will reduce potential human health risk levels such that they do not exceed EPA's acceptable risk range of 10^{-4} to 10^{-6} for incremental carcinogenic risk. The remedy will ensure that the non-carcinogenic hazard is below a level of concern because the calculated HI will not exceed 1. In addition, groundwater will be restored to acceptable levels.

Implementation of the amended remedy will not pose any unacceptable short-term risks.

8.2 Compliance with ARARs

The amended remedy is expected to achieve federal MCLs or more stringent State standards for beryllium, chromium, TCE, and vanadium in groundwater. Specifically, the chemical-specific ARARs for groundwater, which are the New Jersey MCLs (N.J.A.C. 7:10) and GWQS (N.J.A.C. 7:9C), and the federal MCLs published under the Safe Drinking Water Act (40 CFR 141.11-16 and 141.60-63).

The amended remedy will also comply with action-specific ARARs, including the establishment of institutional controls pursuant to N.J.A.C. 7:26C-8.3 in the form of CEA/WRA to restrict the groundwater use and prohibit activities that could result in human exposure to beryllium, chromium, vanadium and VOCs in groundwater. Upon establishment of a CEA, NJDEP identifies the region within the CEA and can restrict groundwater use with the WRA. Table 4A of Appendix II provide a list of the ARARs.

8.3 Cost Effectiveness

EPA has determined that the amended remedy is cost-effective and represents a reasonable value. In making this determination, the following definition was used: "... remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (40 C.F.R. §300.430(f)(1)(ii)(D)).

EPA evaluated the "overall effectiveness" of those alternatives that satisfied the threshold criteria (*i.e.*, were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness.

The amended remedy is considered cost-effective because it is a permanent solution that reduces risk to acceptable levels sooner and at less expense than the existing remedy. Detailed cost estimates for the Selected Remedy may be found in Table 5 and 5A of Appendix II.

EPA has determined that the remedy selected in this ROD Amendment is cost effective as it meets both threshold criteria and is reasonable given the relationship between the overall effectiveness afforded by the existing pump-and-treat remedy.

8.4 Utilization of Permanent Solutions and Alternative Treatment Technologies

The amended remedy provides significant long-term effectiveness and permanence by reducing the contaminant mass in the most contaminated areas of the groundwater plume. The amended remedy employs *in-situ* treatment methods that result in the permanent degradation of the contaminants of concern in the groundwater plume thereby reducing toxicity, mobility or volume through treatment. The byproducts of degradation cannot re-form or be converted to more toxic forms and, therefore, the amended remedy represents a permanent solution to site contamination. Active treatment and degradation of contaminants prevent future migration of these contaminants in groundwater.

The amended remedy will permanently reduce the levels of contaminants in the groundwater plume to meet the RAOs and remediation goals.

It is anticipated that the amended remedy will attain the remediation goals sooner when compared to the existing pump-and-treat remedy.

8.5 Preference for Treatment as a Principal Element

Principal threat wastes are source materials that include or contain hazardous substances that act as a reservoir for the migration of contamination to groundwater, surface water or air, or act as a source for direct exposure. These materials are considered to be highly toxic or highly mobile and, generally, cannot be reliably contained. At this site, principal threat waste was present in the lagoons and was removed in 1994-1997. Contaminated groundwater generally is not considered to be a source material; however, non-aqueous phase liquids (NAPLs) in groundwater may be viewed as source material. NAPLs are hydrocarbons that exist as a separate, immiscible phase when in contact with water and/or air. NAPLs are not present in groundwater at the site.

8.6 Five-Year Review Requirements

While this amended remedy will ultimately result in reduction of contaminant levels in groundwater to levels that would allow for unlimited use and unrestricted exposure, it will take longer than five years to achieve these levels. As a result, the site will be reviewed at least once every five years until such time as RAOs and remediation goals are attained and human health and the environment are protected with unrestricted use.

The five-year reviews for the site will also evaluate potential health risks (residential drinking water wells) posed by groundwater based on periodic monitoring results, updated toxicity factors for contaminants of concern, status of natural attenuation progress in the untreated portions of the groundwater plumes.

9.0 DOCUMENTATION OF SIGNIFICANT CHANGES PUBLIC PARTICIPATION

The Proposed Plan identified Alternative 3, *In-Situ* Remediation, Monitored Natural Attenuation, Institutional Controls, Long-Term Monitoring and Five-Year Reviews, as the preferred alternative for the site. Upon review of all comments submitted during the public comment period from July 30 to August 28, 2015, and at the public meeting on August 12, 2015, EPA has determined that no significant changes to the selected remedy, as it was presented in the Proposed Plan, are warranted.

RECORD OF DECISION

Shieldalloy Metallurgical Corporation Superfund Site
Newfield, Gloucester/Cumberland Counties, New Jersey

Operable Unit 2: Soil, Sediment, Surface Water

United States Environmental Protection Agency

Region II
September 2014



260292

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ATTACHMENTS TO RESPONSIVENESS SUMMARY

- ATTACHMENT A - JULY 9, 2014 PUBLIC MEETING TRANSCRIPT
 - ATTACHMENT B - LETTERS AND E-MAIL SUBMITTED DURING THE PUBLIC COMMENT PERIOD
-

DECLARATION

SITE NAME AND LOCATION

Shieldalloy Metallurgical Corporation Superfund Site, (EPA ID# NJD002365930)
Borough of Newfield, Gloucester County and City of Vineland Cumberland County, New Jersey
Operable Unit 2 - Soil, Sediment and Surface Water

STATEMENT OF BASIS AND PURPOSE

This decision document presents the Selected Remedy to address contaminated soil, sediment and surface water at the Shieldalloy Metallurgical Corporation Superfund site located in the Borough of Newfield, Gloucester County and City of Vineland, Cumberland County, New Jersey. The remedy was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300. This decision is based on the Administrative Record established for this site. This decision is based on the Administrative Record established for this site.

EPA has organized the planned work into three operable units (OUs). The Selected Remedy for OU2 is intended to address soil, surface water and sediment at the site, including the Shieldalloy Metallurgical Corporation (SMC) facility and the Hudson Branch of the Maurice River, with the exception of the contaminant perchlorate, which will be addressed in a subsequent phase of the site cleanup.

The State of New Jersey New Jersey Department of Environmental Protection (NJDEP) concurs with the Selected Remedy. A copy of the concurrence letter can be found in Appendix IV.

ASSESSMENT OF THE SITE

The response action selected in this Record of Decision (ROD) for OU2 is necessary to protect public health or welfare and the environment from actual or threatened releases of hazardous substances from the site into the environment.

DESCRIPTION OF THE SELECTED REMEDY

The response action described in this document represents the second of three planned remedial phases, or operable units, described in this document. It addresses contamination in facility soil, sediment and surface water of the Hudson Branch. The Selected Remedy incorporates and builds upon earlier cleanup actions at the site.

The major components of the Selected Remedy include:

- Capping the 1.3 acres of vanadium- and chromium-impacted soils in the eastern storage areas of the facility that pose unacceptable risks to human health and ecological receptors.
- Establishing institutional controls in the form of deed restrictions/environmental easements and/or restrictive covenants on future uses of the facility to ensure that residential use is prohibited and to ensure that all existing covers/caps are not disturbed (for example, should a building be removed, the former building footprint must be paved to maintain existing cover/cap).
- Maintaining the existing security measures at the site (e.g., signage and fencing).
- Maintaining the existing covers/caps.
- Excavating approximately 9,800 cubic yards of Hudson Branch sediments to a depth of 12 inches in the channel and a depth of six inches outside the channel to meet remediation goals listed in the Remediation Goals section of this ROD and eliminate ecological risk. Depending on the results of the pre-design investigation, an estimated 400 to 500 cubic yards of sediment may need to be excavated in the small "pond area" to meet remediation goals and eliminate ecological risk in that localized area (less than half an acre).
- Backfilling the excavated areas with clean material to match the surrounding grade and restoring, as necessary.
- Monitoring surface water in the Hudson Branch for vanadium until the NJDEP surface water quality standard of 12 micrograms/liter (ug/L) is met.
- Reviewing site conditions at least once every five years, as required by CERCLA.
- Performing further vanadium and hexavalent chromium delineation during the pre-remedial design phase in areas of the Lower Hudson Branch to identify areas that may require excavation.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA Section 121, 42 U.S.C. § 9621 in regard to the following:

Part 1: Statutory Requirements

The Selected Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective and utilizes permanent solutions and alternative treatment technologies (or resource recovery) to the maximum extent practicable.

Part 2: Statutory Preference for Treatment

The Selected Remedy for OU2 does not satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element for reasons explained in the Decision Summary.

Part 3: Five-Year Review Requirements

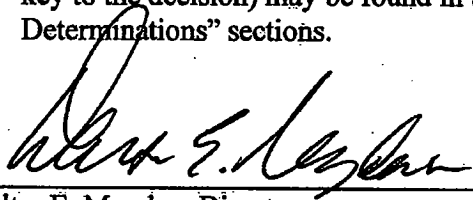
The Selected Remedy is protective for reasonably anticipated future uses, which do not anticipate unlimited use or unrestricted exposure for the facility. Because the remedy will result in hazardous substances, pollutants, or contaminants remaining on the site above levels that allow for unlimited use and unrestricted exposure, a statutory review under Section 121 (c) of CERCLA, 42 U.S.C. § 9621 (c), will be conducted within five years after the date of initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

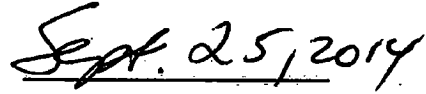
The following information is included in the Decision Summary section of this ROD. Additional information can be found in the administrative record file for the site.

- Chemicals of concern and their respective concentrations may be found in the “Site Characteristics” section;
- Baseline risk represented by the chemicals of concern may be found in the “Summary of Site Risks” section;
- A discussion of cleanup levels for chemicals of concern may be found in the “Remedial Action Objectives” section;
- A discussion of source materials constituting principal threats may be found in the “Principal Threat Waste” section;
- Current and reasonably anticipated future land use assumptions are discussed in the “Current and Potential Future Site and Resource Uses” section;
- A discussion of potential land uses that will be available at the site as a result of the Selected Remedy is found in the discussed in the “Current and Potential Future Site and Resource Uses” section;
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs are discussed in the “Description of Alternatives” section; and

- Key factor(s) that led to selecting the remedy (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) may be found in the “Comparative Analysis of Alternatives” and “Statutory Determinations” sections.



Walter E. Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II



Date

DECISION SUMMARY

1. SITE NAME, LOCATION AND BRIEF DESCRIPTION

The Shieldalloy Metallurgical Corporation (SMC) Superfund site, is located at 35 South West Boulevard, in the Borough of Newfield, Gloucester County, New Jersey, with a small portion of the southwestern corner located in the City of Vineland, Cumberland County, New Jersey. See Figure 1 of Appendix I.

The site, Superfund identification number is NJD002365930, is on the U.S. Environmental Protection Agency's (EPA's) National Priorities List (NPL). A responsible party is available and financially viable to conduct the remediation. EPA is the lead agency and the New Jersey Department of Environmental Protection (NJDEP) is the support agency.

The site comprises two parcels, the "SMC facility" and the "farm parcel," and the Hudson Branch, an intermittent stream that discharges into Burnt Mill Pond.

SMC Facility The larger parcel is approximately 67.5 acres in size. The coordinates of the center of the site are 39°32'27.6" North latitude and 75°01'06.7" West longitude. The facility is currently used by SMC as office space. Portions are also leased by SMC to various construction companies and to the Borough of Newfield for warehousing. The facility is secured by a locked perimeter chain link fence. The facility is bordered to the north by a rail spur and an inactive landfill; to the east by a wooded area, residences and small businesses; to the south by residences located along Weymouth Road; and to the west by Conrail rail lines, South West Boulevard, and various light industries and residences.

The SMC facility consists of four main areas, the *former production area*, *former lagoons area*, *eastern storage area* and *southern area*, as well as the *natural resource restoration areas*. Figure 2 of Appendix I is a current layout of the facility.

The *former production area* is approximately 22 acres and is the area where the majority of manufacturing activities occurred. This area is largely covered with buildings and asphalt or concrete pavement. A Stage II cultural resources survey was prepared for an on-site structure, the Specialty Glass Corporation Melting Tank, in compliance with the National Historic Preservation Act, which concluded that no cultural features of significance exist near the area to be remediated.

The *former lagoons area* occupies 4.5 acres. It includes nine lagoons that stored wastewaters and were closed by SMC between 1994 and 1997, with NJDEP oversight. Lagoon closure and

remediation activities included sludge removal, liner removal, contaminated soil removal, post-excavation sampling, and backfilling. The former lagoons area is covered by a clean soil cover and light vegetation, which includes small trees and grass.

The *eastern storage area* had been used to store drums containing by-products of the manufacturing processes. A 1.3-acre portion of the eastern storage area is uncapped and covered with some gravel and concrete debris.

The *southern area* includes undeveloped areas, the on-site impoundment and the former thermal pond area. The on-site impoundment receives a combination of facility storm water and treated water from the on-site groundwater treatment system pursuant to New Jersey Pollutant Discharge Elimination System (NJPDES) permit requirements. The water from the on-site impoundment is directed into a ditch flowing toward the Hudson Branch. The on-site impoundment was installed by SMC in the early 2000s by excavating existing soils. The former thermal pond area covers 0.77 acres and consists of a rectangular depression, approximately three to five feet deep, that is covered with vegetation including grass and small trees. During facility operations, the former thermal pond was used as an emergency holding reservoir for treated wastewater. Several areas were developed and included in the natural resource restoration areas (discussed below). The remainder of the southern area is undeveloped and covered with a vegetated cap, grass and small trees.

The *natural resource restoration areas* are located in a non-contiguous collection of areas around the facility, generally focused on the eastern and southern areas and total nearly 10 acres. Remediation and restoration of these areas was governed by a 1997 Settlement Agreement of Environmental Claims and Issues by and between SMC and the United States (on behalf of the EPA) and the State of New Jersey (on behalf of NJDEP). In 1999 and 2000, caps comprised of clean soil and vegetation, including a variety of grass, flowers, trees and bushes, were constructed in these areas. These vegetative caps provide habitat value and eliminate the potential for exposure to contaminated soil.

Farm Parcel The smaller farm parcel is 19.8 acres of noncontiguous farmland in the City of Vineland approximately 2,000 feet southwest of the facility. The farm parcel has never been used for manufacturing activities. It is considered part of the site because it is land that was purchased by SMC for implementation of the OUI remedy.

Hudson Branch The Hudson Branch, an intermittent stream, runs along the southern edge of the facility and discharges to Burnt Mill Pond. A small "pond area" exists on the Hudson Branch where water velocity slows and sediments accumulate.

The SMC facility and farm parcel are zoned industrial. The future land use of the site is anticipated to remain consistent with its current zoning. The site is located in a mixed residential, agricultural, commercial, and light industrial area. The closest residences are approximately 100 feet south of the facility. Burnt Mill Pond is used for recreational purposes. Groundwater is the primary source of drinking water in the area.

2. SITE HISTORY AND ENFORCEMENT ACTIVITIES

Specialty glass manufacturing began at the facility in the early 1900s. SMC purchased the facility in the early 1950s. From 1955 to 2006, SMC manufactured specialty steel and super alloy additives, primary aluminum master alloys, metal carbides, powdered metals and optical surfacing products at the facility. Production processes also included chromium metal, chromium oxide, vanadium pentoxide, ferro-vanadium, uranium oxide, thorium oxide, ferro-columbium and columbium nickel. General facility operations, product spills and wastewater discharges contributed to the contamination of the site.

Chromium contamination of the groundwater was first detected by NJDEP in 1970 in a Borough of Newfield municipal well and a private well. As a result, NJDEP directed SMC to perform groundwater investigations to determine the extent of the chromium contamination and to develop an appropriate remedial action. SMC purchased the farm parcel in 1970 to construct a recovery well as part of the groundwater extraction and treatment system. In 1979, SMC began pumping and treating chromium-contaminated groundwater.

In September, 1983, the SMC site was proposed for inclusion on the NPL pursuant to Superfund law. The site was added to the NPL in September 1984. In 1991, SMC completed a remedial investigation. The remedial investigation (RI) indicated that the groundwater, soil, surface water and sediments were contaminated with volatile organic compounds (VOCs) and metals. Supplemental RI activities were conducted in 1995 to delineate the extent of contamination. A feasibility study (FS) report was completed in 1996.

In September 1996, the NJDEP issued a ROD for operable unit (OU) 1 with EPA concurrence. The selected remedy includes modification of the existing groundwater remediation treatment system to optimize the capture of contaminated groundwater, air stripping to remove VOCs from the groundwater, electrochemical treatment with supplemental treatment methods, as needed, to remove inorganic contaminants, especially metals, and discharge of the treated groundwater to the surface waters of Hudson Branch. This remedy has been temporarily suspended while pilot studies are underway to evaluate ways to enhance the remediation of the groundwater contamination, consistent with the OU1 remedy. Enhancements were found to be necessary because an optimization study for OU1 concluded that groundwater concentrations had reached asymptotic conditions (steady state) for over 10 years.

Enforcement Activities

The NJDEP was the lead agency for the site until 2010 when the lead was transferred to the EPA. In 1984, NJDEP and SMC entered into an administrative consent order requiring SMC to investigate groundwater at the site and to address the plume of groundwater contamination. In 1988, NJDEP directed SMC to modify and upgrade its groundwater extraction and treatment system and to expand the groundwater monitoring program. Later in 1988, NJDEP and SMC signed a second administrative consent order requiring SMC to upgrade the groundwater extraction and treatment system, to perform a site-wide study of the soil, and to close nine

lagoons. At NJDEP's direction, SMC also took a number of response actions that resulted in the excavation of the lagoons, the removal of above-ground and underground storage tanks, and the capping of the industrial areas of the site. Nearly all the developed portions of the site were eventually capped, except the eastern storage area. In 2006, TRC Environmental Corporation (TRC) executed a contract with SMC that ensures the existing building/paving and vegetative caps are maintained and that an appropriate deed notice would be implemented. Also in 2006, NJDEP entered into an administrative consent order with SMC and TRC for the completion of all Superfund cleanup activities at the site.

The EPA entered into administrative order on consent (2010 Administrative Order) with SMC and TRC in April 2010 to perform activities for OU2. Under the oversight of EPA, TRC initiated the supplemental RI in October 2011, which included sampling and analyzing of soil, sediment and surface water. The site characterization summary report (SCSR) completed in February 2013 includes all sampling results. The baseline human health risk assessment (BHHRA) and a baseline ecological risk assessment (BERA) were completed in February 2013. The draft final RI report, which summarizes the data and risk assessments, was approved by EPA in May 2014.

The 2010 Administrative Order also requires TRC and SMC to perform response activities in connection with OU1 and OU3. For OU1, the 2010 Administrative Order requires the continued performance of an appropriate (non-perchlorate) groundwater remedy. For OU3, the 2010 Administrative Order requires the completion of an RI/FS to address perchlorate at the site.

3. COMMUNITY PARTICIPATION

On June 27, 2014, EPA released the Proposed Plan and supporting documentation for the OU2 contaminated soil, sediment and surface water remedy to the public for comment. EPA made these documents available to the public in the administrative record repositories maintained at the EPA Region II office (290 Broadway, New York, New York 10007) and the Newfield Public Library, (115 Catawba Avenue, Newfield, New Jersey). EPA published a notice of availability for these documents in Vineland's The Daily Journal newspaper; posted the Proposed Plan on EPA's Region II website; and opened a public comment period on the documents from June 27, 2014 to July 28, 2014.

On July 9, 2014, EPA conducted a public meeting at the Edgerton Christian Academy to inform local officials and interested citizens about the Superfund process, to review the planned remedial activities at the site, and to respond to questions from area residents and other attendees. Responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see Appendix V).

4. SCOPE AND ROLE OF OPERABLE UNIT

As with many Superfund sites, the issues at the Shieldalloy Metallurgical Corporation site are complex. As a result, EPA has organized the planned work into three separate OUs.

- Operable Unit 1 (OU1): Non-perchlorate contamination in the groundwater at the site.
- Operable Unit 2 (OU2): Non-perchlorate contamination in the soil, surface water and sediment.
- Operable Unit 3 (OU3): Perchlorate contamination in the all media- soil, surface water, sediment and groundwater.

In September 1996, the NJDEP issued a Record of Decision (ROD) for OU1 with EPA concurrence. The selected remedy includes modification of the existing groundwater remediation treatment system to optimize the capture of contaminated groundwater, air stripping to remove VOCs from the groundwater, electrochemical treatment with supplemental treatment methods, as needed, to remove inorganic contaminants, especially metals, and discharge of the treated groundwater to the surface waters of Hudson Branch. This remedy has been temporarily suspended while pilot studies are underway to evaluate ways to enhance the remediation of the groundwater contamination, consistent with the OU1 remedy. It is anticipated that a ROD amendment will be issued for OU1 by fall 2015.

The second operable unit, OU2 is the subject of this ROD and addresses the non-perchlorate contamination present in soil, surface water and sediment. As described in Summary of Site Risks section of this ROD, contact with the contaminants of concern (COCs) present in the surface soil and sediments pose an unacceptable non-cancer risk to the future Construction/Utility Worker, because concentrations of contaminants are present in soil above levels that pose risks above a hazard quotient of one. As also described in the Summary of Site Risks section of this ROD, sediment in the Hudson Branch and soil from the eastern storage area pose an unacceptable risk to ecological receptors from site contaminants. The main contaminants of concern for OU2 are chromium and vanadium in soil and sediment.

The third operable unit, OU3 is in the RI/FS phase. Perchlorate is both a naturally occurring and synthetically-made chemical that is used to produce rocket fuel, fireworks, flares and explosives. SMC used perchlorate in some of its manufacturing processes at the site. Remediation was originally separated into perchlorate and non-perchlorate segments by NJDEP, with concurrence from EPA. A remedy for OU3 is expected to be the final action for the site.

Radiological contamination in the "restricted area" on the SMC facility is not part of the Superfund site and is being addressed by NJDEP, as authorized by the U.S. Nuclear Regulatory Commission (NRC). The restricted area is surrounded by a chain link fence with barbed wire and is posted with specific signage. Inside the perimeter fence is a storage area with slag and dusts containing low levels of radioactive isotopes generated during past facility operations. Further information about the environmental response actions to address the restricted area is available from NJDEP.

5. SUMMARY OF SITE CHARACTERISTICS

5.1 Physical Characteristics of the Site

The site comprises two separate parcels: the SMC facility and the farm parcel and the Hudson Branch. The larger parcel is approximately 67.5 acres in size. The coordinates of the center of the site are 39°32'27.6" North latitude and 75°01'06.7" West longitude. The topography of the facility is relatively flat. The facility is located on a slight topographic high, with the ground surface at the site generally sloping to the west-southwest, toward the Hudson Branch stream.

As discussed above, the SMC facility consists of four main areas, the *former production area*, *former lagoons area*, *eastern storage area* and *southern area*, as well as the *natural resource restoration area*. Most of the facility is covered with buildings and asphalt or concrete pavement (Former Production Area). The other areas are covered with light vegetation, which includes small trees and grass (southern area, former lagoon area and the natural resource area). A 1.3-acre portion of the eastern storage area is uncapped and covered with some gravel and concrete debris. The facility is currently used by SMC as office space. Portions are also leased by SMC to various construction companies and to the Borough of Newfield for warehousing. The facility is secured by a locked perimeter chain link fence. The facility is bordered: to the north by a rail spur and an inactive landfill; to the east by a wooded area, residences and small businesses; to the south by residences located along Weymouth Road; and to the west by Conrail rail lines, South West Boulevard, and various light industries and residences.

5.2 Site Geology and Hydrogeology

Observations in numerous soil borings completed at the SMC facility are consistent with the regional surficial geology. Three surficial geologic units underlie the site, the Bridgeton Formation, Cohansey Formation and Kirkwood Formation. The Bridgeton Formation consists of up to 28 feet of brown sand. Below the Bridgeton Formation is the Cohansey Formation, which consists of coarse sands and little silt in the upper 40 feet and generally finer sand and some clay and silt lenses in the lower 60 to 80 feet. Below the Cohansey Formation is the Kirkwood Formation, which consists of a vertically confining gray clay and silt layer that was encountered at the site at 121 to 153 feet below ground surface. The thickness of the unsaturated soils ranges from a few feet near the Hudson Branch to 17 feet in the northern part of the site. Saturated soils are considered a component of OU1. Bedrock was not encountered during site investigations but is estimated at approximately 2,000 feet below ground surface (bgs).

The principal aquifer in the vicinity of the site is the Cohansey Sand, which is approximately 130 feet in saturated thickness. The upper portion of the Kirkwood Formation is composed of silt and clay, which functions as a confining unit in the vicinity of the site, restricting the downward flow of groundwater from the Cohansey Sand. Depths to groundwater across the site range from surface grade at the Hudson Branch to 17 feet bgs in the northwest quadrant of the site. Groundwater flow direction in the Cohansey Sand is southwest, which closely matches general site topography. The average linear on-site groundwater flow velocity in the shallow portion of

the aquifer is about 2.9 feet/day. A downward hydraulic gradient has been observed in most on-site well clusters, which is consistent with groundwater pumping conditions at and downgradient of the site.

5.3 Surface Water and Wetlands

Surface water bodies at the site include the on-site impoundment, Hudson Branch and associated wetlands, and Burnt Mill Pond. Burnt Mill Branch is included to represent background conditions.

The on-site impoundment is located near the southwest corner of the facility and receives facility storm water and treated water from the onsite groundwater treatment system. There are two permitted outfalls related to the on-site impoundment that discharge to Hudson Branch.

The Hudson Branch is a small “losing” stream that discharges to both groundwater and Burnt Mill Pond. It originates just to the southeast of the facility and flows west/southwest. Downstream of the facility, the Hudson Branch flows to the southwest, under South West Boulevard, Weymouth Road, Arbor Avenue, and North West Avenue (via culverts), then flow discharges into Burnt Mill Pond. The portion of Hudson Branch from the Facility to North West Avenue is considered Upper Hudson Branch, for purposes of the remedial investigation; the portion of Hudson Branch from North West Avenue to Burnt Mill Pond is considered Lower Hudson Branch. There is an approximate 300 linear feet section of Hudson Branch that is broader (75 feet wide) between Arbor Avenue and North West Avenue, referred to as the “pond area.”

Near the facility, the Hudson Branch is relatively dry during much of the year but can be as deep as three and a half feet during rain events. The channel of the Hudson Branch is generally one to three feet wide, although along the southern boundary of the facility the branch becomes broader, expanding from 20 feet to as much as 100 feet wide.

Wetlands were delineated along the Hudson Branch in the vicinity of the site. The delineation included the site and the Hudson Branch from the headwaters, past the Farm Parcel, up to and including Burnt Mill Pond. The width of the wetlands ranges from approximately five feet along the Facility boundary to more than 400 feet near the southwest corner of the facility. At a number of points along Hudson Branch, the wetland vegetation consists of phragmites, which is an invasive plant species generally considered to provide low quality habitat. Higher quality, native wetlands vegetation includes overstory red maple, pine oak, sweet gum, black willow, green ash and white ash, and understory species dominated by ferns.

Burnt Mill Pond, a man-made waterbody, is located approximately one and a quarter miles southwest of the SMC Facility and receives discharge from Hudson Branch and Burnt Mill Branch. Burnt Mill Pond is reported to be shallow, with a mean depth of 2.4 feet, encompasses 15 acres when full and is impounded by a dam. In 2011, the NJDEP’s dam safety group

indicated that the dam presented threat of failure and directed the City of Vineland (the owner of the pond) to drain the pond and study the dam. Burnt Mill Pond is located in a municipal park used for recreation.

Burnt Mill Branch (sometimes referred to as the Manaway Branch) generally flows north to south and discharges into Burnt Mill Pond. Burnt Mill Branch is located approximately 4,000 feet west of the site. The headwaters of Burnt Mill Branch begin approximately 7,000 feet northwest of the site. Burnt Mill Branch does not receive waters from the site.

6. NATURE AND EXTENT OF CONTAMINATION

6.1 Soil Contamination

One hundred ninety-six surface and subsurface soil samples were collected from the facility between 1990 and 2012. Soil samples were collected across all site areas. Because earlier response actions included the removal of contaminated soils from lagoon areas and the capping of developed portions of the facility, the OU2 Supplemental RI/FS sampling included a mixture of confirmatory sampling (to demonstrate that these earlier actions were sufficient to remove soils associated with unacceptable levels of exposure) and sampling in areas where no previous response measures had been taken. The soil samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs) and metals. Chromium is of significant interest for OU2 due to its presence as a result of site activities and the toxicity associated with specific forms, and was analyzed extensively. The speciation of chromium (hexavalent versus total chromium) was studied in order to delineate the nature and extent of contamination. In general, analyses targeted *either* hexavalent chromium *or* total chromium, depending on the appropriate screening criteria for the appropriate media (i.e. most soils were analyzed for hexavalent chromium because most screening criteria are based on hexavalent chromium, whereas most sediment samples were analyzed for total chromium), although there are a number of instances where both species were analyzed. Hexavalent chromium generally does not exist at significant concentrations in sediments because stream tend to have reducing environments which favor the trivalent form of chromium.

The analytical results for the soil samples were screened against the more stringent (lower) of the New Jersey non-residential direct contact soil remediation standards (NRDCSRS), the EPA regional screening levels (RSLs), and the New Jersey chromium policy (2007).

The levels of concern for hexavalent chromium are the policy value of 20 milligrams per kilogram (mg/kg) and the RSL for industrial/commercial land use of 5.6 mg/kg. Detections of hexavalent chromium were screened against the more stringent value of 5.6 mg/kg. Hexavalent chromium was detected in 28 of 196 soil samples at levels greater than 5.6 mg/kg. The highest hexavalent chromium detected was 58.3 mg/kg in a sample collected from a lagoon in 1995. The highest concentration detected during the supplemental remedial investigation in 2011-2012 was 24 mg/kg in a sample collected in the former production area.

Vanadium is also of significant interest for OU2. Vanadium was analyzed as “vanadium,” but, for purposes of the human health risk assessment work, vanadium was conservatively considered to be vanadium pentoxide, which is a more toxic form. The levels of concern for vanadium are the NRDCSRS of 1,100 mg/kg and the RSL of 5,100 mg/kg for industrial/commercial soil. Detections of vanadium were screened against the more stringent value of 1,100 mg/kg. Vanadium was detected in 18 of 182 soil samples at levels greater than 1,100 mg/kg, with the highest vanadium concentration of 12,100 mg/kg detected in a sample collected in the southern area.

The levels of concern for arsenic are the statewide background concentration of 19 mg/kg and the RSL of 2.4 mg/kg for industrial/commercial soil. Detections of arsenic were screened against the more stringent value of 2.4 mg/kg. Arsenic was detected in two out of 193 samples at concentrations at levels greater than 2.4 mg/kg. Arsenic was detected at 43.1 mg/kg and 69.8 mg/kg, in samples collected from the former production area in 1995.

VOCs were not detected in any of the 196 soil samples above the more stringent of the NRDCSRS or RSL for industrial/commercial soil for each VOC.

The levels of concern for benzo(a)pyrene are the NRDCSRS of 0.2 mg/kg and the RSL of 21 mg/kg for industrial/commercial soil. Detections of benzo(a)pyrene were screened against the more stringent value of 0.2 mg/kg. Benzo(a)pyrene was detected in only one of 48 soil samples collected at the facility above 0.2 mg/kg, at a concentration of 0.42 mg/kg from a sample collected from the former production area in 1990. In 1995, a second sample collected from the same location yielded a result below the NRDCSRS, and, since no other samples indicated the presence of benzo(a)pyrene, it was determined that the first result was a false positive. Therefore, benzo(a)pyrene was not analyzed further during the remedial investigation.

Total polychlorinated biphenyls (PCBs) were detected in only one of 64 samples collected at the facility above the NRDCSRS of 1.0 mg/kg. Total PCBs were measured in a sample collected from the eastern storage areas at 3.4 mg/kg in 1990. Due to the low frequency of detection and the relatively low concentration, PCBs were not evaluated further during the supplemental remedial investigation.

Pesticides were detected in three of 45 soil samples collected at the facility above the NRDCSRSs. The pesticides were detected in a sample collected from the former production area and two samples collected from the eastern storage areas in 1990. Samples were collected from these same locations in 1995 and pesticides were not detected. Due to the low frequency of detection and the more recent non-detections, pesticides were not evaluated further during the supplemental remedial investigation.

Facility Soils: Impact to Groundwater

The potential for non-perchlorate contamination in groundwater is being addressed by OU1. The potential for OU2 soils to act as a continuing source of groundwater contamination was

evaluated as part of the OU2 supplemental remedial investigation by comparing facility soils data to generic NJDEP Impact to Groundwater (IGW) values for ten metals, arsenic, cadmium, lead, mercury, silver, beryllium, nickel, manganese, aluminum and antimony. The comparison indicates that the concentrations of all ten metals exceeded the IGW values. Five metals in facility soils (arsenic, cadmium, lead, mercury and silver) are not adversely currently impacting groundwater. The remaining five metals (beryllium, nickel, manganese, aluminum and antimony) are affecting groundwater locally near the facility; however, data collected at the site upgradient of the farm parcel shows that concentrations in groundwater of four of the five metals (beryllium, nickel, manganese and aluminum) are below the New Jersey Ground Water Quality Standards, New Jersey Administrative Code (NJAC) 7:9C (NJGWQS) indicating that they may be naturally attenuating.

The remaining metal, antimony, exceeded NJDEP's IGW value in some samples. The OU2 supplemental remedial investigation evaluated the potential for antimony in soil to act as a source of local groundwater contamination. The remedial investigation concluded that elevated levels of antimony in soil are not associated or co-located with elevated levels of antimony in groundwater, suggesting that natural soil constituents such as iron and aluminum oxide are assisting in the natural attenuation of antimony.

Vanadium does not have an NJDEP IGW value; however, the potential for vanadium to migrate through soil and into groundwater was also evaluated, due to the presence of vanadium in site soils and elevated concentrations of vanadium historically detected in groundwater in localized areas beneath the facility. Recent sampling data shows that vanadium in shallow groundwater immediately downgradient of the facility was either not detected or was present at concentrations below the EPA tap water screening levels for vanadium compounds.

As stated previously, VOCs were not detected in facility soils and it was concluded that OU2 soils are not a continuing source of VOCs in groundwater.

In summary the RI concluded that metals contamination in soils does not act as a source of contamination to groundwater. However, because these ten metals exceed the NJDEP IGW values, they will continue to be monitored as part of the OUI remedy to confirm that they do not impact the ground water or that they naturally attenuate in groundwater in compliance with the NJGWQS. Although there is no NJDEP IGW value for vanadium, it will also continue to be monitored as part of the OUI remedy to confirm that it naturally attenuates in groundwater.

6.2 Surface Water and Sediment Contamination

6.2.1 On-Site Impoundment

Surface water samples are collected on a monthly basis as part of the on-site groundwater treatment system monitoring. The data showed no exceedances of either the 2009 EPA National Recommended Water Quality Criteria or the 2006 EPA Region III Biological Technical Assistance Group Freshwater Screening Benchmarks. These values are risk-based, and have

been developed to screen contaminants for both human and ecological receptors. Therefore, surface water in the impoundment was not evaluated further in the remedial investigation.

Six sediment samples were collected from the on-site impoundment to evaluate the sediment conditions in this area. The samples collected were analyzed for SVOCs, pesticides, PCBs, metals, total organic carbon, particle size and pH. The results were compared to the New Jersey ecological screening criteria (ESCs). PCBs were detected in two sediment samples exceeding the ESCs. Metals detected above the ESCs included arsenic, chromium, iron, lead and nickel. Chromium had the highest percent of detections above the ESC.

6.2.2 Hudson Branch

The Hudson Branch is classified by NJDEP as Fresh Water 2 (FW2). The designated uses of FW2 surface waters include maintenance, migration and propagation of the natural and established biota; primary contact recreation; industrial and agricultural water supply; and public potable water supply after conventional filtration treatment and disinfection. In addition to the FW2 classification, the Hudson Branch is designated as NT, non-trout waters. These waters are generally not suitable for trout because of their physical, chemical or biological characteristics, but are suitable for a wide variety of other fish species.

During the supplemental remedial investigation, surface water and sediment samples were collected from locations along seven transect lines perpendicular to the Hudson Branch. Samples were analyzed for VOCs and metals, including total chromium and hexavalent chromium. The concentrations were considerably lower than those detected during previous investigations, indicating that the early response actions (capping and excavating the lagoons) have addressed much of the on-site contamination that acted as a continuing source to surface water.

A total of seven surface water samples were collected and the results were compared to the New Jersey Surface Water Quality Standards (SWQS). No VOCs were detected in the surface water samples. Iron and vanadium were detected in surface water at concentrations exceeding the SWQS and above concentrations in background samples. Since vanadium generally has low solubility, it is suspected, based the fact that vanadium concentrations in surface water achieve non-detect concentrations in Burnt Mill Pond, that the vanadium concentration detected in surface water may be related to suspended sediment in surface water.

A total of 26 sediment samples were collected at several depths. In general, the shallow sediment samples were collected from the top six inches below the water-sediment interface, while deeper samples were collected from the depth intervals of 1.5 to 2.0 feet and 2.5 to 3.0 feet. SVOCs, pesticides, PCBs and metals were detected in the shallow depths at concentrations exceeding the ecological screening criteria (ESC). Chromium had the highest percent of detections above its ESC, although other metals were detected in shallow sediment samples exceeded their respective ESCs, including antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, nickel and zinc. The highest chromium concentrations (up to 10,400 mg/kg) in Hudson Branch channel sediments occur near the south central portion of the site, and generally decrease along Hudson Branch, moving downstream away from the site. Further, concentrations tend to decrease after

Hudson Branch flows through a culvert. This trend is consistent with the depositional tendencies of the stream (the tendency of sediments to settle out as water backs up upstream of the culvert). It is believed that the culverts under Southwest Boulevard and Weymouth Road restrict the water flow, allowing sediments to settle out upstream. So the area upstream of these roads is considered a depositional area and contains the greatest chromium mass.

In order to understand the distribution of each of the metals relative to the other metals, and relative to location in Hudson Branch, the concentrations of metals in shallow sediment was plotted along the Hudson Branch centerline, as shown in Figure 3 of Appendix I. Review of this figure indicates that the metals are co-located (generally, high metal concentrations occur at similar parts of Hudson Branch), and that total chromium has the highest metal concentrations. From a characterization perspective, this would indicate that chromium is considered the “indicator” contaminant in sediments.

SVOCs, pesticides, PCBs and metals were detected in the deeper horizons at concentrations exceeding the ESCs. Contaminant concentrations decrease significantly with depth. Sediment sampling in the small “pond area” showed detections of chromium, nickel and vanadium at concentrations exceeding the ESCs.

A total of 26 stream bank soil samples were collected at specific locations (top of bank on each side of the stream for the seven transect lines) in the Hudson Branch.

Semi-VOCs, PCBs, hexavalent chromium, vanadium, and arsenic were detected in several stream bank samples exceeding the NJDEP Residential Direct Contact Soil Remediation Standards (RDCSRS). No pesticides were detected in the samples exceeding the RDCSRS. The areas where samples exceed RDCSRS include the broader area of Hudson Branch, south of the site’s southern fence line. Exceedances were also observed in a few samples collected from flood areas southwest of Weymouth Road. Based on the hydrology and topography of these areas, it is believed that these broader areas of Hudson Branch are more depositional in nature, and have generally retained more sediment laden with metals.

6.2.3 *Burnt Mill Branch*

Eight background surface water samples were collected and analyzed from the Burnt Mill Branch upstream from Burnt Mill Pond. Aluminum, barium, iron, lead, manganese and mercury were detected in eight surface water samples at concentrations exceeding the SWQS.

Eight background sediment samples (top six inches) were collected and analyzed from the Burnt Mill Branch upstream from Burnt Mill Pond. Cobalt, copper, iron, lead, manganese, mercury, nickel and zinc were detected in all sediment samples collected from the Burnt Mill Branch at concentrations exceeding the ESCs.

6.2.4 *Burnt Mill Pond*

Four surface water samples were collected and analyzed from the Burnt Mill Pond prior to its draining by the City of Vineland. Aluminum, iron, manganese and vanadium were detected in three of the four surface water samples at concentrations exceeding the SWQS. The historical and recent OU2 supplemental remedial investigation data show that concentrations of metals in surface water samples have decreased significantly in the Burnt Mill Pond.

Four sediment samples (top six inches) were collected from Burnt Mill Pond prior to draining. Chromium, copper, manganese, mercury and nickel were detected in all sediment samples collected from the Burnt Mill Pond at concentrations exceeding the ESCs.

7. **CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES**

Much of the former manufacturing area is covered in buildings or pavement. Generally, there is a very small staff remaining at the facility, which includes administrative and maintenance personnel. Additionally, SMC leases space to tenants. The tenants currently include a construction company, the Borough of Newfield (storage of municipal vehicles), and an emergency response company. Current access to the SMC site is restricted at the road by a gate and a guard. The restricted area is surrounded by chain link fence, which is topped by barbed wire. A portion of the undeveloped SMC site, south of the southern fence, is unrestricted and, therefore accessible to trespassers. The 2011 Conceptual Site Model (CSM) prepared by TRC assumes the usage of the facility will remain the same (industrial/commercial), and SMC still intends on maintaining industrial uses at the site.

8. **SUMMARY OF SITE RISKS**

TRC completed a BHHRA and a BERA for the site. These risk assessments were based on the CSM developed for the site and environmental sampling data collected during the RI. The risk assessments evaluate and determine the risk posed by site contaminants to humans and ecological receptors. The risk assessments provide the basis for taking action and identify the contaminants and exposure pathways that need to be addressed by the remedial action.

8.1 **Human Health Risk Assessment**

A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios, as follows.

Hazard Identification – uses the analytical data collected to identify the contaminants of potential concern (COPCs) at the site for each medium, with consideration of a number of factors explained below.

Exposure Assessment – estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated soil) by which humans are potentially exposed.

Toxicity Assessment- determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of effect (response).

Risk Characterization – summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations that exceed acceptable levels, defined by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as an excess lifetime cancer risk greater than 1×10^{-6} - 1×10^{-4} or a Hazard Index greater than 1.0; contaminants at these concentrations are considered COCs and are typically those that will require remediation at the site. Also included in this section is a discussion of the uncertainties associated with these risks.

8.1.1 Hazard Identification

In this step, analytical data collected during the RI was used to identify COPCs in the soil, sediment and surface water at the site based on factors such as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations of the contaminants as well as their mobility and persistence.

Surface and subsurface soil, sediment and surface water samples were collected in 2011 and 2012 as part of the supplemental remedial investigation. A comprehensive list of all site COCs can be found in the Table 2 series of the February 2013 *Revised Draft Baseline Human Health Risk Assessment (Operable Unit 2)* report.

8.1.2 Exposure Assessment

In this step, the different exposure scenarios and pathways through which people might be exposed to the contaminants identified in the previous step were evaluated.

Consistent with Superfund policy and guidance, the BHHR is a baseline human health risk assessment and therefore assumes no remediation or institutional controls (ICs) to mitigate or remove hazardous substance releases. Cancer risks and non-cancer hazard indices were calculated based on an estimate of the reasonable maximum exposure (RME) expected to occur under current and future conditions at the site. The RME is defined as the highest exposure that is reasonably expected to occur at a site.

The exposure assessment identified potential human receptors based on a review of current and reasonably foreseeable future land use at the site. The Shieldalloy site is located in the Borough of Newfield, with the Hudson Branch and Burnt Mill Pond extending into the City of Vineland,

in Gloucester and Cumberland Counties in New Jersey. Land use surrounding the site is primarily rural with some commercial, industrial and residential properties; however, the site is currently zoned industrial, and the reasonably anticipated future use is expected to remain so.

Based on information gathered during the RI such as zoning and demographic information, several exposure scenarios for the site were selected. For the current land use scenario, the following exposure scenarios were evaluated:

- Adolescent recreational trespassers contacting/ingesting surface soil and/or inhaling fugitive dust.
- Adolescent recreational trespassers contacting/ingesting surface water and sediment from two on-site impoundments, Hudson Branch and/or Burnt Mill Pond.
- Adult on-site workers contacting/ingesting surface soil and/or inhaling fugitive dust.
- Adult utility and construction workers contacting/ingesting surface/subsurface soil and/or inhaling fugitive dust.

For potential future land uses, the following exposure scenarios were evaluated:

- Adolescent recreational trespassers contacting/ingesting on-site and off-site surface soil and/or inhaling fugitive dust.
- Adolescent recreational trespassers contacting/ingesting surface water and sediment from two on-site impoundments, Hudson Branch Stream and/or Burnt Mill Pond.
- Adult utility and construction workers contacting/ingesting surface/subsurface soil and/or inhaling fugitive dust.
- Adult and young child on-site residents contacting/ingesting surface soil and/or inhaling fugitive dust.

Table 2 of Appendix II presents all exposure pathways considered in the BHHRA, and the rationale for the selection or exclusion of each pathway.

8.1.3 Toxicity Assessment

In this step, the types of adverse health effects associated with contaminant exposures and the relationship between magnitude of exposure and severity of adverse health effects were determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other non-cancer health effects, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some contaminants are capable of causing both cancer and non-cancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and non-cancer hazards due to exposure to site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of the site-related chemicals would be additive. Thus, cancer and non-cancer risks associated with exposures to individual COPCs were summed to indicate

the potential risks and hazards associated with mixtures of potential carcinogens and non-carcinogens, respectively.

Toxicity data for the human health risk assessment were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or another source that is identified as an appropriate reference for toxicity values consistent with the May 2013 Tier 3 Toxicity Value White Paper (<http://www.epa.gov/oswer/riskassessment/pdf/tier3-toxicityvalue-whitepaper.pdf>). Non-cancer toxicity values can be found in Table 3 of Appendix II (cancer toxicity values are not provided as there was no unacceptable carcinogenic risk for this operable unit). Additional toxicity information for all COPCs is presented in the Table 5 and 6 series of the February 2013 Revised Draft BHHRA.

8.1.4 Risk Characterization

This step summarized and combined outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures were evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

$$\text{Risk} = \text{LADD} \times \text{SF}$$

Where: Risk = a unitless probability (1×10^{-6}) of an individual developing cancer
 LADD = lifetime average daily dose averaged over 70 years (mg/kg-day)
 SF = cancer slope factor, expressed as $[1/(\text{mg}/\text{kg}\cdot\text{day})]$

The likelihood of an individual developing cancer is expressed as a probability that is usually expressed in scientific notation (such as 1×10^{-4}). For example, a 10^{-4} cancer risk means a “one-in-ten-thousand excess cancer risk;” or one additional incidence of cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk) with 10^{-6} being the point of departure.

For non-cancer health effects, a hazard index (HI) is calculated. The HI is determined based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (e.g., the amount of a chemical ingested from contaminated drinking water)

is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

$$\text{HQ} = \text{Intake}/\text{RfD}$$

Where: HQ = hazard quotient

Intake = estimated intake for a chemical (mg/kg-day)

RfD = reference dose (mg/kg-day)

The intake and the RfD will represent the same exposure period (*i.e.*, chronic, subchronic, or acute).

The key concept for a non-cancer HI is that a “threshold level” (measured as an HI of less than 1) exists below which non-cancer health effects are not expected to occur.

The HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the calculated HI exceeds 1 for all chemicals for a specific population, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete target organ-specific HI values are then compared to the acceptable limit of 1 to evaluate the potential for non-cancer health effects on a specific target organ or system. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

All evaluated receptors demonstrated cancer risks that were within EPA’s acceptable range.

Non-cancer risks are summarized in Table 4 of Appendix II. Exposure to vanadium (as vanadium pentoxide) in on-site soils posed an unacceptable human health hazard to the future adult construction worker (combined surface/subsurface soils) through the inhalation route and future on-site child resident (surface soils) through the ingestion route.

It is anticipated that the proposed remedy will reduce exposure to vanadium in on-site soils, resulting in reduced risks to adult construction workers and hypothetical child. Since contamination above levels appropriate for unlimited use and unrestricted exposure will remain on the site, continued monitoring will be performed.

Exposure to the sediments and surface water of Hudson Branch and Burnt Mill Pond were also estimated and both non-cancer hazards and cancer risks were within acceptable levels. The parameters used to characterize exposure to the sediments of Burnt Mill Pond were developed

based on assumptions to identify the reasonable maximum exposure anticipated for contact with these sediments. In an attempt to reduce the uncertainty associated with exposure to the sediments, and with consideration of exposure to the sediments while the pond is dry, the exposure was re-evaluated using more conservative estimates to evaluate both non-cancer hazards and cancer risks. These risks were also found to be within acceptable levels. This reevaluation is documented in the *Human Health Risk Assessment Addendum*, dated August 12, 2014, which can be found in the administrative record for this site.

Uncertainty in the Risk Assessment

The process of evaluating human health cancer risks and non-cancer health hazards involves multiple steps. Inherent in each step of the process are uncertainties that ultimately affect the final risks and hazards. Important site-specific sources of uncertainty are identified for each of the steps in the four-step risk process below.

Uncertainties in Hazard Identification

Uncertainty is always involved in the estimation of chemical concentrations. Errors in the analytical data may stem from errors inherent in sampling and/or laboratory procedures. Additional COC identification uncertainties include the following.

Chromium was not speciated to discern between hexavalent (VI) and trivalent (III) chromium in the most recent sediment analytical samples. Chromium VI is the more toxic form of chromium. As a health-protective approach, total chromium was therefore evaluated as chromium VI in sediments in the HHRA. This is highly conservative and overestimates risk due to exposure to chromium in sediments. In most soils and sediments, chromium will be present predominantly in the chromium III oxidation state (Agency for Toxic Substances and Disease Registry (ATSDR) 2008). If the sediment concentrations of total chromium were screened against the chromium III RSL, rather than the chromium VI RSL, chromium would not be included in the HHRA as a COPC.

Chromium VI was selected as a COC in surface water due to an elevated sample quantitation limit (SQL) (10 micrograms/liter (ug/L)) above the residential tapwater RSL of 0.031 ug/L. Due to the uncertainty associated with the actual concentration of chromium VI in surface water, a value of one-half the SQL (5 ug/L) was chosen as the exposure point concentration (EPC). Since the potential concentration range of chromium VI in surface water can range from 0 to 10 ug/L, use of 5 ug/L provides a useful estimate of the concentration. Chromium VI was not detected in any surface water sample above the SQL of 10 ug/L. Therefore, the use of one-half the SQL likely overestimates risk.

Uncertainties in Exposure Assessment

There are two major areas of uncertainty associated with exposure parameter estimation. The first relates to the estimation of EPCs. The second relates to parameter values used to estimate chemical intake (e.g., ingestion rate, exposure frequency). The following are examples of each.

In those cases where there were either an insufficient number of samples or an insufficient number of detected samples within a dataset to calculate an upper confidence limit (UCL) using

ProUCL; the maximum detected concentration was used in characterizing risk. The use of the maximum detected concentration as the EPC likely overestimates risk.

For all exposure scenarios and pathways, the RME exposure assumptions incorporated into the Revised Draft OU2 BHHRA are intended to be conservative (i.e., health protective) and likely overestimate the potential exposures and risks.

Uncertainties in Toxicity Assessment

A potentially large source of uncertainty is inherent in the derivation of the EPA toxicity criteria (i.e., RfDs, RfCs, SFs). Additionally, the following site-specific toxicity uncertainty was identified.

Seven compounds (methylcyclohexane, 4-nitrophenol, carbazole, dimethyl phthalate, niobium, titanium, and zirconium) detected in site media do not have toxicity criteria and were not quantitatively evaluated, therefore potentially resulting in an underestimation of total risk.

Uncertainties in Risk Characterization

When all of the uncertainties from each of the previous three steps are added, uncertainties are compounded. Since the risk assessment made mostly conservative assumptions, the overall risk assessment for this operable unit likely overestimates risks and hazards as a result of exposure to the site.

It is worth noting that the site was separated into three operable units for ease of contaminant investigation and remedy selection. As a result, risks resulting from exposure to contaminants in groundwater and perchlorate in all media are not quantitatively summed with the soil vanadium non-cancer hazards identified in this operable unit.

8.2 Ecological Risk Assessment

A part of the RI, ecological risk was evaluated to determine the likelihood that adverse ecological effects are occurring or may potentially occur as a result of the site-related contamination.

The risk assessment was performed in accordance with EPA's *Ecological Risk Assessment Guidance for Superfund* eight step approach. As part of that approach, a Screening Level Ecological Risk Assessment (SLERA) was conducted to identify potential environmental risks associated with the site. The SLERA indicated there was a potential for adverse ecological effects. Therefore a more thorough study, called a BERA, was performed.

The BERA evaluated the following potentially complete receptor exposure pathways (and representative receptors):

- Exposure of aquatic invertebrates to contaminated sediment and surface water in Hudson Branch;

- Exposure of mammalian semi-aquatic herbivore (muskrat; *Ondatra zibethicus*) to contaminated sediment, surface water and prey in Hudson Branch;
- Exposure of avian semi-aquatic herbivore (mallard; *Anas platyrhynchos*) to contaminated sediment, surface water, and prey items in Hudson Branch;
- Exposure of avian semi-aquatic insectivore (tree swallow; *Tachycineta bicolor*) to contaminated sediment, surface water, and prey items in Hudson Branch;
- Exposure of mammalian semi-aquatic insectivore (little brown bat; *Myotis lucifugus*) to contaminated sediment, surface water, and prey items in Hudson Branch;
- Exposure of terrestrial plants to contaminated soil, in Eastern Storage Areas, Southern Area, and Hudson Branch Wetlands;
- Exposure of avian terrestrial insectivore (American robin; *Turdus migratorius*) to contaminated soil and prey in the Eastern Storage Areas, and Hudson Branch Wetlands; and
- Exposure of mammalian terrestrial insectivore (short-tailed shrew; *Blarina brevicauda*) to contaminated soil and prey items in the Eastern Storage Areas, and Hudson Branch Wetlands.

Quantitative risk was evaluated by using the HQ approach (exposure estimates are compared to the ecotoxicity benchmark values). HQs greater than one indicate potential risk. Preliminary remediation goals (PRGs) were developed for the areas where ecological risk was identified (see Table 5 of Appendix II).

Potential risks to aquatic invertebrate communities were primarily evaluated by comparing sediment COC concentrations in Hudson Branch to sediment benchmarks; additionally, bulk sediment toxicity testing was performed for survival, growth, and reproduction. Potential risks to terrestrial plants were assessed by comparing surface soil COC concentrations to their respective plant toxicity reference values (TRVs). Potential risks to populations of upper trophic level (wildlife) receptors at the site were evaluated using food chain models (including measured tissue concentrations of aquatic vegetation, aquatic invertebrates, and terrestrial invertebrates) to calculate dietary doses, which were compared to dietary TRVs to yield a quantitative estimate of risk. For wildlife receptors, both no observable adverse effects level (NOAEL) and lowest observed adverse effect level (LOAEL) TRVs were considered.

For the aquatic invertebrate community, potential PRGs are based on the results of the laboratory toxicity testing for the sediment samples collected within the Hudson Branch. Potential PRGs for the semi-aquatic wildlife receptors foraging on plants or aquatic macroinvertebrates residing in

the sediments are based on the use of an HQ of 1 for the selected maximum acceptable toxicant concentration (MATC) and LOAEL avian/mammalian TRVs.

The results of the BERA support the following conclusions:

- Several COCs in Hudson Branch sediment have the potential to result in adverse ecological effects to aquatic invertebrates as determined by comparison to freshwater sediment screening levels. Chromium, copper, lead, nickel, and vanadium are expected to be the primary risk drivers. Hudson Branch sediment toxicity testing results also indicated a potential for reduced invertebrate survival, growth, and reproduction.
- Ecological risks were calculated for avian (mallard) and mammalian (muskrat) semi-aquatic herbivores exposed to chromium in sediment from the Hudson Branch. Avian (tree swallow) and mammalian (little brown bat) semi-aquatic insectivores were found to be at risk to chromium and vanadium in sediment from the Hudson Branch.
- In terrestrial areas plants were found to be at risk to chromium, manganese, nickel and vanadium in surface soil. Avian (American robin) and mammalian (short-tailed shrew) insectivores were found to be at risk to chromium and vanadium in surface soil from the Eastern Storage Area. In the Hudson Branch wetlands chromium in surface soil was found to pose a risk to the short-tailed shrew and the American robin. However, the American robin was also potentially at risk to vanadium in surface soil from the Hudson Branch wetlands.

In summary, elevated HQ risks were estimated in the BERA for aquatic invertebrates and upper trophic level receptors for exposure to COCs in the Hudson Branch. These risks are consistent with the reduced survival, growth, and reproduction in the toxicity sediment testing results. These data support the premise that site contaminants in sediment are sufficient to cause adverse alterations to the functioning of aquatic invertebrate communities. Elevated concentrations of the COCs are generally higher in samples closer to the facility. Chromium, copper, lead, nickel, and vanadium are the primary risk drivers in Hudson Branch.

Elevated HQ risks were estimated in this BERA for terrestrial mammals (insectivores), birds (insectivores), and plants. Primary risk drivers are chromium and vanadium. See Table 6 of Appendix II for calculated HQ values.

More specific information concerning public health and environmental risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the HHRA and BERA reports, which can be found in the administrative record for this site. The response action selected in this ROD is necessary to protect public health and the environment from actual or threatened releases of hazardous substances to the environment.

9. REMEDIAL ACTION OBJECTIVES

9.1 Remedial Action Objectives

The Remedial Action Objectives (RAOs) relate to statutory requirements for the development of remedial actions. Site specific RAOs relate to potential exposure routes and specific contaminated media, such as sediments, and are used to identify target areas of remediation and contaminant concentrations. They require an understanding of the contaminants in their respective media and are based upon the evaluation of specific goals to protect human health and the environment. These objectives are based on available information and standards, such as Applicable and Relevant or Appropriate Requirements (ARARs), to-be-considered standards and guidance and site-specific risk-based levels. The following RAOs have been developed to address the contamination found in the SMC facility soil and the Hudson Branch sediment and surface water at the site:

- Prevent human exposure to contaminated surface soils in the eastern storage area of the SMC facility that pose an unacceptable non-cancer health hazard;
- Prevent exposure to contaminated surface soils in the eastern storage area of the SMC facility that pose an unacceptable ecological risk; and
- Prevent exposure to contaminated sediments in Hudson Branch that pose an unacceptable ecological risk.

Furthermore, protectiveness at the site is dependent upon the ongoing maintenance of capped areas on the SMC facility.

9.2 Remediation Goals

The remediation goals discussed below address total chromium, hexavalent chromium and vanadium contamination in surface soil in the eastern storage area of the facility and total chromium, vanadium, copper, lead and nickel in the Hudson Branch sediment. The remediation goals were developed specifically to protect human health and the environment and thereby address the unacceptable risks identified in the HHRA and the BERA. Based on the results of the BERA and HHRA, remediation goals were developed for surface soil at the eastern storage areas and sediments associated with the Hudson Branch. The overall extent of contamination exceeding remediation goals for Hudson Branch sediment is summarized in Figure 4 of Appendix I.

<i>Facility Soil in Eastern Storage Areas</i>	
Contaminant	Remediation Goal (mg/kg)
Total chromium	44
Hexavalent chromium	20
Vanadium	54

<i>Hudson Branch Sediment</i>	
Contaminant	Remediation Goal (mg/kg)
Total Chromium	1,275
Vanadium	574
Copper	223
Lead	203
Nickel	107

Although vanadium was detected in surface water samples at concentrations exceeding the SWQS, no unacceptable ecological risk was found. Given that the highest vanadium concentrations in surface water are co-located with the highest concentrations of vanadium in sediment, it is anticipated that addressing the vanadium-contaminated sediment will reduce the levels of vanadium in surface water such that the SWQS is met.

10. DESCRIPTION OF ALTERNATIVES

Section 121 (b)(1) of CERCLA (42 U.S.C. 9621(b)(1)) requires that each remedial alternative be protective of human health and the environment, be cost-effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility or volume of hazardous substances.

The guidelines and requirements established in the NCP (40 CFR 300.430) are also considered in the development of alternatives. The EPA has recognized that at certain sites, the use of treatment technologies and the development of a wide range of remedial options may not be practicable.

Principal threat wastes are source materials that include or contain hazardous substances that act as a reservoir for the migration of contamination to groundwater, surface water or air, or act as a source for direct exposure. These materials are considered to be highly toxic or highly mobile and, generally, cannot be reliably contained. At this site, principal threat waste was present in the lagoons and was removed between 1994 and 1997. Therefore, the remedial alternatives developed for the site focused on alternatives that address the low-level threats posed by the contaminated facility soils and Hudson Branch sediments.

The process used to develop and screen appropriate technologies and alternatives to address OU2 contamination in the facility soils and Hudson Branch sediments can be found in the feasibility study report. The initial screening was based on effectiveness, implementability (technical and administrative) and relative cost. The technologies that were carried forward after the initial screening are engineering/institutional controls such as a deed notice; monitoring; capping;

excavation; and treatment. These suitable technologies were assembled into four alternatives representing a range of options for remediation of OU2.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

10.1 Common Elements

All of the remedial alternatives except Alternative 1 incorporate and build upon the existing fencing, covers, caps and the previous cleanup of the lagoons to complete the response actions at the site. Institutional controls consisting of deed restrictions will be implemented along with some of the alternatives. Given the expected future use for this site, unrestricted use would not be anticipated. New Jersey's promulgated standard for restricted use will require that, at a minimum, land use would need to be controlled to prevent unrestricted (e.g., residential) use. These institutional controls limit future use of the site soil and are common components of each of the alternatives. If Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances are left on the site, five-year reviews would be conducted to monitor the contaminants and evaluate the need for future actions.

10.2 Detailed Description of Remedial Alternatives

10.2.1 Alternative 1 – No Action

Estimated Capital Cost:	\$0
Estimated Annual O&M Cost:	\$0
Estimated Present Worth:	\$0
Estimated Construction Time:	None

The No Action alternative was retained for comparison purposes as required by the NCP, the regulation under which EPA implements the CERCLA. No remedial actions would be implemented as part of the No Action alternative. This alternative does not include institutional controls.

10.2.2 Alternative 2 – Institutional Controls and Monitoring

Estimated Capital Cost:	\$150,000
Estimated Annual O&M Cost:	\$490,000
Estimated Present Worth:	\$640,000
Estimated Construction Time:	3 months

Alternative 2 includes institutional controls to address all areas that have contaminants posing unacceptable risks from facility soils and/or exceeding the New Jersey RDCSRS (NJAC 7:26D),

which are used to determine the need for a deed notice or other land-use restriction. Alternative 2 also incorporates the existing capping of facility soils and fencing around the facility. The risks posed by contaminated sediments at Hudson Branch would be addressed by monitoring of naturally occurring processes that reduce the toxicity, mobility and volume of the contaminants. Under Alternative 2, no further active remediation or treatment of contaminated facility soils in the eastern storage areas or Hudson Branch sediments would be conducted to prevent potential human or ecological exposure.

Institutional Controls, in the form of deed notices, restrictive covenants, and/or local ordinances, would be implemented to prohibit future residential development of facility soils and would ensure that all existing covers and fencing are maintained. For example, should a building be removed, the former building footprint would be paved to maintain existing cover/cap. In addition, if subsurface work is anticipated, the deed notice would require a management plan for workers involved in handling contaminated sediments or facility soils. The deed notice would comply with NJAC 7:26C-7.2. The management plan would require use of appropriate personal protective equipment and proper handling and disposal of contaminated sediments or soils, and would include appropriate inspection and maintenance of engineering controls such as fencing and capping.

Monitoring/Long Term Monitoring – Naturally occurring processes can reduce the toxicity, mobility and volume of the contaminants in sediment. Natural occurring processes may include biodegradation, biotransformation, diffusion, dilution, adsorption, volatilization, chemical reaction or destruction, resuspension, downstream transport and burial by cleaner material. The reduced sediment concentrations over time indicates that some or all of the natural processes mentioned above may be occurring. A detailed monitoring plan would be developed and implemented. Monitoring could include regular inspections with sediment, surface water and plant sampling to confirm that the remedy is achieving the RAOs. Because Alternative 2 would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, a review of the remedy's protectiveness would be conducted at least once every five years, as required by CERCLA.

10.2.3 Alternative 3: Capping Facility Soils, Excavating Sediments and Institutional Controls

Estimated Capital Cost:	\$4,900,000
Estimated Annual O&M Cost:	\$410,000
Estimated Present Worth:	\$5,310,000
Estimated Construction Time:	24 months

Alternative 3 includes capping of uncapped facility soils in the eastern storage area to address the unacceptable risks posed by contaminated soils. The existing capping of facility soils and fencing around the facility would be incorporated and ICs would be implemented, as described in Alternative 2. Additional delineation of contamination above remediation goals would be required for the sediments along the Lower Hudson Branch. The contaminated sediments at

Hudson Branch would be excavated to eliminate the unacceptable ecological risk to a depth of 12 inches in the channel and six inches outside the channel.

Soil Capping- A cap would be placed over a 1.3-acre area of the eastern storage area to prevent direct contact with vanadium- and chromium-impacted facility soils. Cap material would be selected during the design after assessing the appropriateness of a permeable or impermeable cap for long-term performance of the remedy. For cost-estimating purposes in the FS, the cap was assumed to a 12- to 24-inch thick gravel cap, or will be a cap consisting of six inches of gravel and two inches of asphalt.

Hudson Branch Sediment Excavation – Approximately 9,800 cubic yards of Hudson Branch sediments that contain metals at concentrations that present a risk to ecological receptors would be excavated, treated (dewatered) and disposed at a permitted off-site disposal location. Excavated areas would be backfilled approximately to pre-existing grades and restored with appropriate fill (the top six inches will be topsoil) and appropriate erosion protective matting, where applicable. Vanadium concentrations in surface water are co-located with the highest concentrations of vanadium in sediment and it is anticipated that addressing the sediment will reduce the surface water concentrations to the NJDEP surface water quality standard of 12 ug/L. Additional sampling will be conducted in the small “pond area” during the pre-design stage to determine if sediment in that localized area is above the remediation goals and should be excavated to protect ecological receptors. The volume of sediment to be excavated, if any, would be small (estimated 400 to 500 of the total 9,800 cubic yards estimated). Remedial design criteria for excavation of sediment in Hudson Branch will incorporate preservation of large trees, to the extent practicable, to promote sustainability and habitat preservation.

Because Alternative 3 would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, a review of the remedy’s protectiveness would be conducted at least once every five years, as required by CERCLA.

10.2.4 Alternative 4: Excavating Facility Soils, Excavating Sediments and Institutional Controls

Estimated Capital Cost:	\$10,670,000
Estimated Annual O&M Cost:	\$410,000
Estimated Present Worth:	\$11,080,000
Estimated Construction Time:	36 months

The Alternative 4 remedy for sediment is the same as Alternative 3. Alternative 4 includes excavation of facility soils in the eastern storage areas to address the unacceptable risks posed by OU2. The existing capping of facility soils and fencing around the facility would be incorporated and ICs would be implemented, as described in Alternative 2. Additional delineation of contamination above remediation goals would be required for the sediments along the Lower Hudson Branch.

Soils Excavation - Approximately 21,000 cubic yards of facility soils would be excavated, treated as necessary to allow for off-site disposal, and transported to a permitted off-site disposal facility. The depth of excavation would be approximately ten feet. The excavated areas would be backfilled and restored with clean soil and gravel to match the surrounding grade and vegetation.

Hudson Branch Sediment Excavation – The Hudson Branch sediments would be excavated to eliminate unacceptable ecological risk, as described in Alternative 3.

11. COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial response measures pursuant to the NCP, 40 CFR §300.430(e)(9) and OSWER Directive 9355.3-01. The detailed analysis consisted of an assessment of the individual response measure against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each response measure against the criteria.

Threshold Criteria - The first two criteria are known as “threshold criteria” because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy.

11.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

Each of the alternatives evaluated for facility soils, except Alternative 1, would provide protection of human health and the environment. No risk reduction is anticipated under the “no action” alternative. Alternative 2 is more protective of human health than Alternative 1 because the deed notice would prohibit the development of the facility for residential use; however, Alternative 2 would not be sufficiently protective because it does not prevent human exposure to contaminated soils or offer protection to ecological receptors from soil or sediment contamination. Alternatives 3 and 4 are protective of human health and the environment. Alternative 3 would eliminate unacceptable risks to human health and ecological receptors through a combination of capping (facility soils), excavation (Hudson Branch sediments) and institutional controls. Alternative 4 would eliminate unacceptable risks by excavating both the facility soils and the Hudson Branch sediments, as well as institutional controls. The excavation of sediment in Alternatives 3 and 4 would cause some disruption of the Hudson Branch habitats, but the disruption would be minimized by incorporating remedial design criteria that preserve large trees, to the extent practicable, and promote sustainability and habitat preservation.

11.2 Compliance with applicable or relevant and appropriate requirements (ARARs)

Section 121 (d) of CERCLA and NCP §300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate Federal and State requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA section 121(d)(4). Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those State standards identified by a in a timely manner and that are more stringent than Federal requirements may be applicable.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site. Only those State standards that are identified in a timely manner and are more stringent than Federal requirements may be relevant and appropriate.

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes or provides a basis for an invoking waiver.

Chemical-specific ARARs for the site include the New Jersey NRDCSRS and the New Jersey SWQS. There are no promulgated standards for sediments. Action-specific ARARs include NJAC 7:26C-7.2 for the establishment of a Deed Notice as an institutional control. Location-specific ARARs include federal and state requirements for protection of wetlands, floodplains and streams. Tables 7, 7a and 7b of Appendix II provide a list of the ARARs.

All alternatives except Alternative 1 rely on institutional controls for protectiveness and would comply with the NJAC 7:26C-7.2 ARAR for the placement of a deed notice. Alternatives 1 and 2 do not achieve the chemical-specific ARARs for the facility soil. Alternative 1 also does not achieve the chemical-specific ARAR for Hudson Branch surface water. Alternative 2 would rely on natural processes and long-term monitoring to achieve and demonstrate compliance with the surface water ARAR. Location-specific ARARs do not apply to Alternative 1 and 2 because remedial actions are not implemented. Alternatives 3 and 4 comply with chemical-specific soils ARARs and the location-specific wetlands and floodplains ARARs and would eliminate exposure via capping and excavating, respectively. Alternatives 3 and 4 also comply with the surface water ARAR by removing the contaminated sediment containing the source of the vanadium and then monitoring to demonstrate compliance with the surface water ARAR.

A list of ARARs can be found in Table 7 of Appendix II.

Primary Balancing Criteria - The next five criteria, criteria 3 through 7, are known as "primary balancing criteria." These criteria are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given site-specific data and conditions.

11.3 Long-term effectiveness and permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain on-site following remediation and the adequacy and reliability of controls.

This evaluation takes into account the residual risk remaining at the conclusion of remedial activities, and the adequacy and reliability of containment systems and institutional controls.

Alternative 1 does not offer long-term effectiveness and permanence. Alternative 2 would provide some long-term effectiveness and permanence through the use of institutional controls to help reduce human exposure to facility soils, but would not be effective or permanent with respect to ecological receptors because contaminated soils would remain uncovered and contaminated sediments would remain in the Hudson Branch. Alternatives 3 and 4 offer long-term effectiveness and permanence through institutional controls as well as capping and excavating facility soils and excavating Hudson Branch sediments.

11.4 Reduction of toxicity, mobility, or volume

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

Alternatives 1 and 2 would not reduce the toxicity, mobility or volume of contaminants through treatment since no treatment would occur. For Alternatives 3 and 4, a treatment technology may be applied to the excavated sediments to facilitate disposal, such as dewatering, that would reduce the mobility or volume of contaminants.

11.5 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community and the environment during construction and operation of the remedy until cleanup levels are achieved.

For Alternative 1, protection of the community and workers during remedial activities would not be applicable as no remedial action is occurring. Alternative 2 would not be effective in the short term because it would not address unacceptable ecological risk. On-site workers handling contaminated surface soil could be exposed to facility soil dust during capping (Alternative 3)

and excavation (Alternative 4) activities, but the exposure would be addressed by proper use of personal protective equipment and following site-specific health and safety plans. Alternative 3 is more effective in the short term than Alternative 4 because it limits contact with contaminated soil to a greater extent than Alternative 4. Alternatives 3 and 4 are the same for the Hudson Branch sediments and thus have the same short-term effectiveness; there would be an increase in traffic along local roads for approximately 36 months and noise from heavy equipment use.

11.6 Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

All alternatives are technically feasible. Since no response activities would occur under Alternative 1, it is simplest to implement. The monitoring under Alternative 2 is also readily implementable. The institutional controls under Alternatives 2, 3 and 4 are relatively easy to develop and administratively feasible to implement. Design and implementation of capping (Alternative 3) and excavation (Alternatives 3 and 4) are administratively feasible, as no permits are required for on-site activities, although such activities would comply with substantive requirements of otherwise required permits, and construction would be performed in accordance with the ARARs.

Alternatives 3 and 4 would require truck traffic coordination through the residential neighborhoods and available landfill capacity at an off-site location. Alternatives 3 and 4 can be readily implemented from an engineering standpoint and utilize commercially available products and accessible technology.

11.7 Cost

Includes estimated capital and O&M costs, and net present worth value of capital and O&M cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. A discount rate of seven percent was assumed for O&M cost.

Cost as a balancing criterion is treated slightly differently than the other four balancing criteria for several reasons. Cost estimates provided at this stage of the CERCLA process are accurate to within -30 percent and +50 percent.

Each action alternative includes long-term operation and maintenance. Therefore, a seven percent discount rate was used to derive each alternative's present net worth cost.

Alternative 1 incurs no cost but provides no protection to human health. Except for Alternative 1, Alternative 2 is the least expensive of the alternatives. Alternative 4 is the most expensive alternative.

Modifying Criteria - The final two evaluation criteria, criteria 8 and 9, are called “modifying criteria” because new information or comments from the state or the community on the Proposed Plan may modify the preferred response measure or cause another response measure to be considered.

11.8 State acceptance

Indicates whether based on its review of the RI/FS reports and the Proposed Plan, the state supports, opposes, and/or has identified any reservations with the selected response measure.

NJDEP concurs with the Selected Remedy.

11.9 Community acceptance

Summarizes the public’s general response to the response measures described in the Proposed Plan and the RI/FS reports. This assessment includes determining which of the response measures the community supports, opposes, and/or has reservations about.

EPA solicited input from the community on the remedial alternative proposed for the site. Verbal comments were recorded from attendees of the public meeting. Several written comments were received.

Representatives of a potentially responsible party provided extensive comments in support of the preferred remedy (Alternative 3). Site neighbors and other community members although generally supportive of EPA’s Alternative 3, expressed a preference for excavation of all material including the slag pile in the restricted area, which is not a component of OU2. The three written comments received expressed a preference for removal and disposal of contaminated soils (Alternative 4), including slag piles.

In Appendix V, the Responsiveness Summary addresses all comments received; it also includes copies of the written comments and a transcript from the public meeting.

12. PRINCIPAL THREAT WASTE

Principal threat wastes are source materials that include or contain hazardous substances that act as a reservoir for the migration of contamination to groundwater, surface water or air, or act as a source for direct exposure. These materials are considered to be highly toxic or highly mobile and, generally, cannot be reliably contained.

At this site, principal threat waste was present in the lagoons and was removed between 1994 and 1997. Therefore, the remedial alternatives developed for the site focused on alternatives that address the low-level threats posed by the contaminated facility soils and Hudson Branch sediments.

13. SELECTED REMEDY

Based upon consideration of the results of the investigations, the requirements of CERCLA, the detailed analysis of the remedial alternatives and public comments, EPA has determined that Alternative 3 is the appropriate remedy for the site. This remedy best satisfies the requirements of CERCLA Section 121 and the NCP's nine evaluation criteria for remedial alternatives, 40 CFR §300.430(e)(9).

The major components of the Selected Remedy include:

- Capping the 1.3 acres of vanadium- and chromium-impacted soils in the eastern storage areas that pose unacceptable risks to human health and ecological receptors.
- Establishing institutional controls in the form of deed restrictions/environmental easements and/or restrictive covenants on future uses of the facility to ensure that residential use is prohibited and to ensure that all existing covers/caps are not disturbed (for example, should a building be removed, the former building footprint must be paved to maintain existing cover/cap).
- Maintaining the existing security measures at the site (e.g., signage and fencing).
- Maintaining the existing covers/caps.
- Excavating approximately 9,800 cubic yards of Hudson Branch sediments to a depth of 12 inches in the channel and a depth of six inches outside the channel to meet remediation goals listed in the Remedial Goals section of this ROD and eliminate ecological risk. Depending on the results of the predesign investigation, an estimated 400 to 500 cubic yards of sediment may need to be excavated in the small "pond area" to meet remediation goals and eliminate ecological risk in that localized area (less than half an acre).
- Backfilling the excavated areas with clean material to match the surrounding grade and restoring, as necessary.
- Monitoring surface water in the Hudson Branch for vanadium until the NJDEP surface water quality standard of 12 ug/L is met.
- Reviewing the protectiveness of the remedy at least once every five years, as required by CERCLA.
- Performing further vanadium and hexavalent chromium delineation during the pre-remedial design phase in areas of the Lower Hudson Branch to identify areas that may require excavation.

The Selected Remedy, Alternative 3, provides the best balance of trade-offs among alternatives with respect to the evaluating criteria. The EPA and NJDEP believe that the Selected Remedy

will be protective of human health and the environment, complies with ARARs, is cost effective, and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Green Remediation Considerations

Green remediation practices can be incorporated into the Selected Remedy's planning and implementation of pre-design investigation and remediation as follows:

- Minimize number of field mobilizations.
- Use local labor to reduce fuel consumption associated with driving to the site.
- Use ultra-low sulfur diesel or fuel-grade biodiesel as fuel for construction vehicles.
- Use non-phosphate detergents for decontamination.
- Use direct push technology, if feasible, for soil sampling to minimize waste production (drill cuttings) and the uses of fuel.
- Schedule sampling to minimize shipping.

14. STATUTORY DETERMINATIONS

As was previously noted, CERCLA §121(b)(1) mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA §121(d) further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4). For the reasons discussed below, EPA has determined that the Selected Remedy meets the requirements of CERCLA Section 121.

14.1 Protection of Human Health and the Environment

The Selected Remedy, Alternative 3, will be protective of human health and the environment through a combination of capping (facility soils), excavation (Hudson Branch sediments) and institutional controls. The planned capping system will prevent direct contact with contaminated soils thereby eliminating the risk to humans posed by incidental ingestion, dermal contact and inhalation of fugitive dust and impacts to ecological receptors.

Sediments with unacceptable levels of contamination in the Hudson Branch will be excavated, treated (dewatered) and disposed at a permitted off-site disposal location thereby further reducing ecologic risk. Post-excavation monitoring will be conducted to ensure compliance with remedial goals for sediment and ARARs for surface water.

Long-term monitoring of the capping remedy and enforcement of institutional controls will ensure that remaining wastes will not impact human health and the environment through direct contact or impact to groundwater.

The Selected Remedy will provide adequate long-term control of risks to human health and the environment through excavation, capping, institutional controls and long-term monitoring. The Selected Remedy presents the fewest short-term risks of all action alternatives.

14.2 Compliance with ARARs

The Selected Remedy (Alternative 3) will comply with all federal and state requirements that are ARARs. A comprehensive ARAR discussion is included in the FS and a listing of ARARs is included in Tables 7, 7a and 7b of Appendix II of this ROD. Alternative 3 would meet the chemical-specific ARARs, including the NRDCSRS for facility soil, and the New Jersey SWQS. There are no chemical-specific ARARs for sediment.

The Selected Remedy will attain all location-specific ARARs, including requirements related to protection of aquatic resources such as the wetlands, floodplains and streams and requirements to mitigate any adverse impacts.

The Selected Remedy will also comply with action-specific ARARs, including the establishment of a deed notice as an institutional control pursuant to NJAC 7:26C-7.2.

14.3 Cost Effectiveness

EPA has determined that the Selected Remedy is cost-effective and represents a reasonable value. In making this determination, the following definition was used: "... remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (40 C.F.R. §300.430(f)(1)(ii)(D)).

EPA evaluated the "overall effectiveness" of those alternatives that satisfied the threshold criteria (*i.e.*, were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness.

The Selected Remedy is considered cost-effective because it is a permanent solution that reduces risk to acceptable levels at less expense than the other permanent, risk reducing alternatives evaluated. Detailed cost estimates for the Selected Remedy may be found in Table 8 and 8a of Appendix II.

EPA found that the benefits derived from excavation and the off-site disposal of contaminated soil, Alternative 4, do not justify the significant increased costs over the Selected Remedy and,

therefore, EPA determined that the Selected Remedy is cost-effective as it has been determined to provide the greatest overall protectiveness for its present worth costs.

14.4 Utilization of Permanent Solutions and Alternative Treatment Technologies

EPA has determined that the Selected Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner, given the specific conditions at the site. Of those alternatives that are protective of human health and the environment and comply with ARARs to the extent practicable, EPA has determined that the Selected Remedy provides the best balance of trade-offs in terms of the five balancing criteria, while also considering State and community acceptance. The remedy will require specific institutional controls over the long-term to ensure the protectiveness of the remedy and the integrity of the cap.

14.5 Preference for Treatment as a Principal Element

At this site, principal threat waste was present in the lagoons and was removed between 1994 and 1997. Therefore, the remedial alternatives developed for the site focused on alternatives that address the low-level threats posed by the contaminated facility soils and Hudson Branch sediments.

14.6 Five-Year Review Requirements

The Selected Remedy will result in contamination remaining above levels that allow for unlimited use and unrestricted exposure. Therefore, a statutory review will be conducted within five years of construction completion for the site to ensure that the remedy is, or will be, protective of human health and the environment.

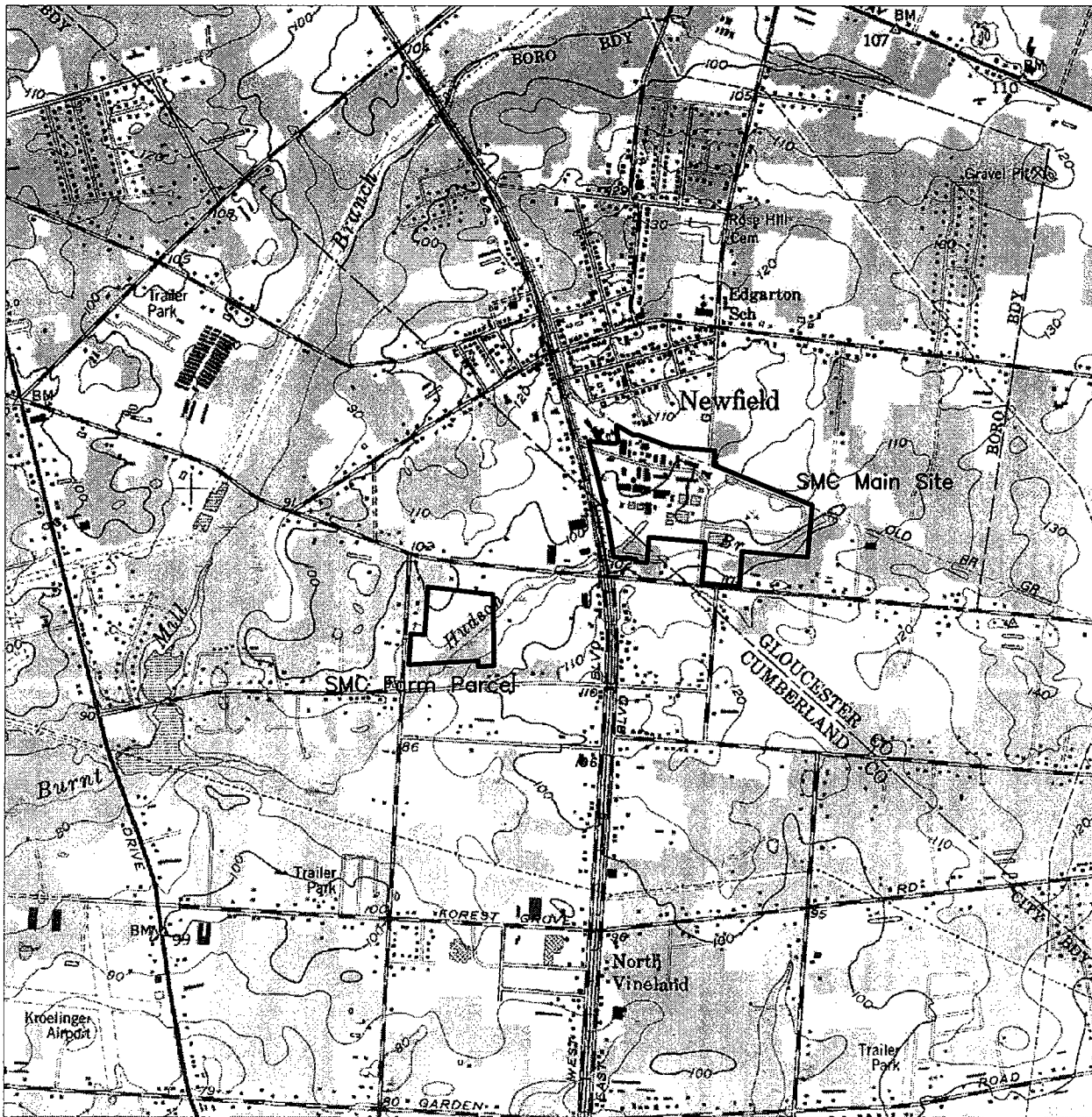
15. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the site was released for public comment on June 26, 2014. The comment period closed on July 28, 2014.

The Proposed Plan identified Alternative 3 (Capping Facility Soils, Excavating Sediments and Institutional Controls) as EPA's preferred alternative. EPA reviewed all written and verbal comments submitted during the public comment period. Upon review of the comments, it was determined that no significant changes to the remedy, as was originally identified in the Proposed Plan, were necessary.

Appendix I

FIGURES



SOURCE: NEWFIELD, N.J. QUADRANGLE, 1953, PHOTOREVISED 1994, 7.5 MINUTE SERIES (USGS TOPOGRAPHIC MAP)

— SITE PROPERTY BOUNDARY



TRC ENVIRONMENTAL CORP.
57 East Willow Street
Millburn, New Jersey 07041

SITE LOCATION MAP

SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

JOB NO.: 2710ES-112434

BR/TH

DATE: SEPTEMBER 2013

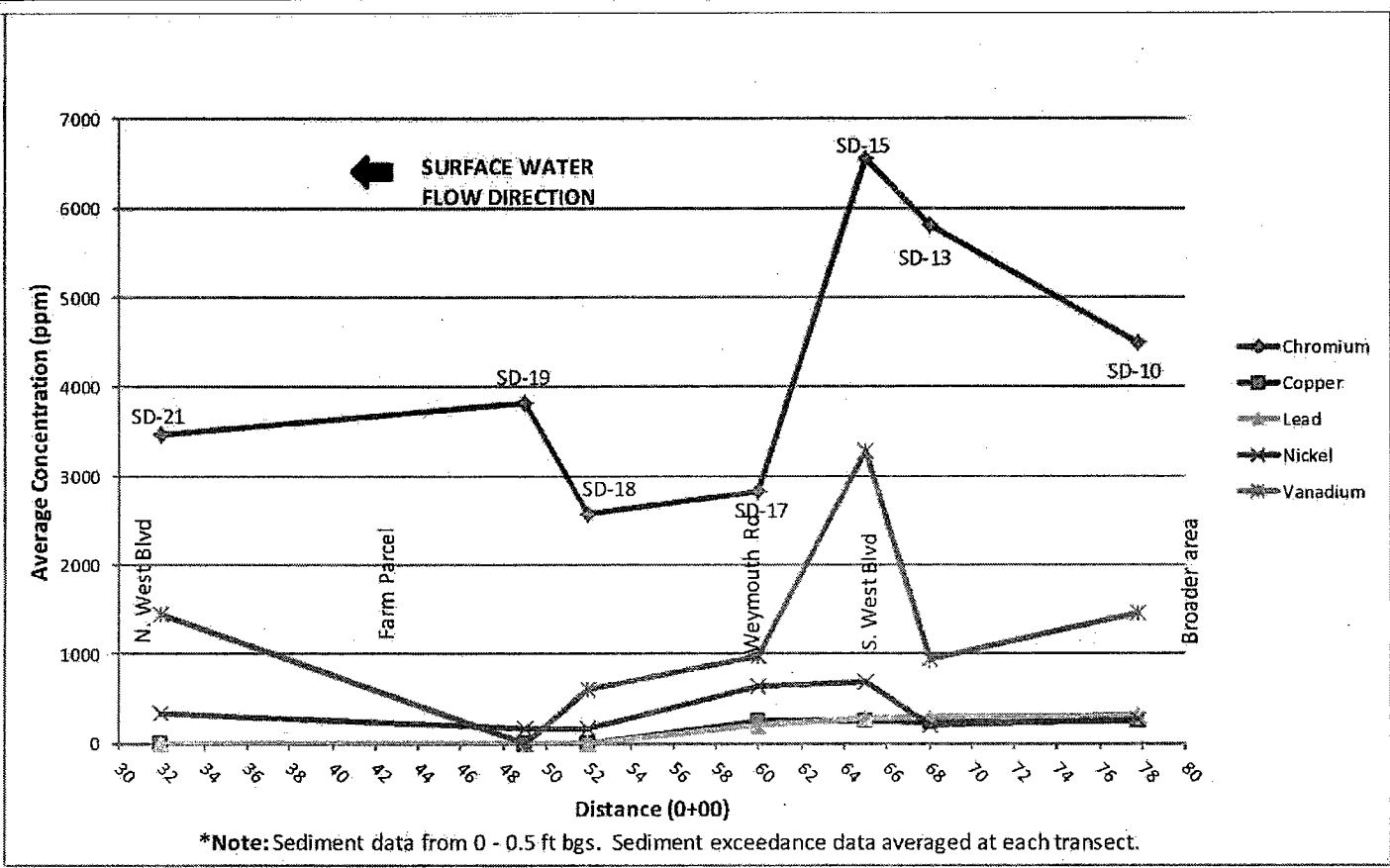
FIGURE: 1




0 2000 FT.
APPROXIMATE SCALE

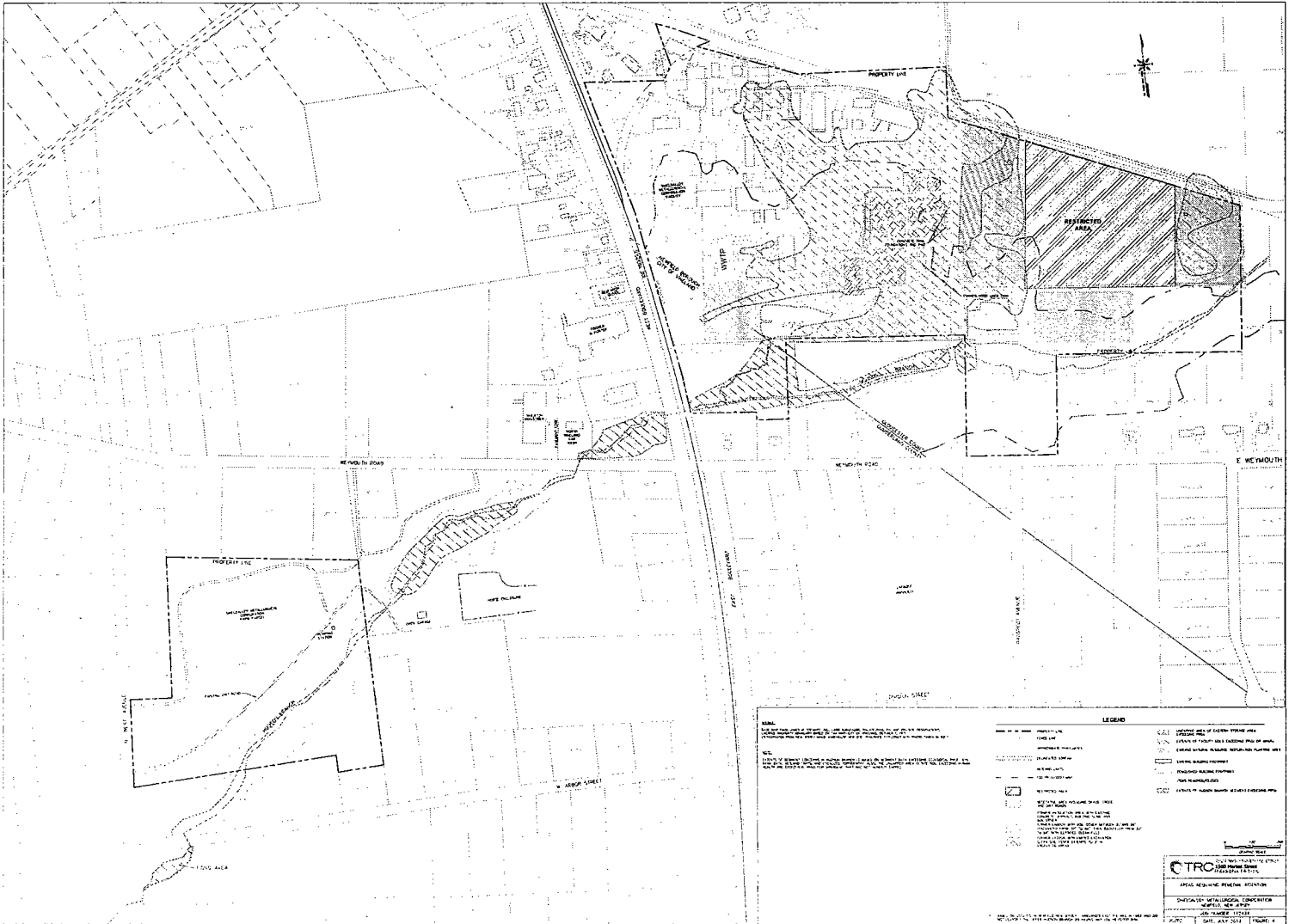


QUADRANGLE LOCATION



 TRC ENVIRONMENTAL CORP. 1500 Market Street Philadelphia, PA 19102		
METALS IN HUDSON BRANCH SEDIMENTS COMPARISON		
SHIELDALLOY METALLURGICAL CORPORATION NEWFIELD, NEW JERSEY		
JOB NO.: 112434		
DD/PZ	DATE: July 2013	FIGURE: 3

Q:\GEO\SC\GIS\KEY\Projects\SMC\FIGURE 1 SITE LOCATION MAP_Feb2013-2010.DWG



Appendix II

TABLES

Table 1 Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations								
Scenario Timeframe: Future Medium: Surface Soil Exposure Medium: On-Site Surface Soil								
Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
		Min	Max					
On-Site Surface Soil	Vanadium	5.4	12,100	mg/kg	147/149	1,329	mg/kg	97.5 % KM (Chebyshev) UCL

Table 1 Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations								
Scenario Timeframe: Current/Future Medium: Soil Exposure Medium: On-Site Combined Surface and Subsurface Soil								
Exposure Point	Chemical of Concern	Concentration		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
		Min	Max					
On-Site Combined Surface/Subsurface Soil	Vanadium	2.4	12,100	mg/kg	223/228	895	mg/kg	97.5% KM (Chebyshev) UCL

**Table 2
Selection of Exposure Pathways**

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Groundwater	Groundwater	Water at Tap Water at Tap	On-Site Worker On-Site Worker	Adult Adult	Ingestion Dermal while showering	None None	Excluded, groundwater is a separate OU and not subject to current AOC
Current	Groundwater	Groundwater	Water at Tap Water at Tap	Off-Site Resident Off-Site Resident	Adult Adult	Ingestion Dermal while showering	None None	Excluded, groundwater is a separate OU and not subject to current AOC
Current	Groundwater	Groundwater	Water at Tap Water at Tap	Off-Site Resident Off-Site Resident	Child Child	Ingestion Dermal while showering	None None	Excluded, groundwater is a separate OU and not subject to current AOC
Future	Groundwater	Groundwater	Water at Tap Water at Tap	On-Site Resident On-Site Resident	Adult Adult	Ingestion Dermal while showering	None None	Excluded, groundwater is a separate OU and not subject to current AOC
Future	Groundwater	Groundwater	Water at Tap Water at Tap	On-Site Resident On-Site Resident	Child Child	Ingestion Dermal while showering	None None	Excluded, groundwater is a separate OU and not subject to current AOC
Current/Future	Soil	Surface Soil	Surface Soil Surface Soil Fugitive Dusts	On-Site Worker On-Site Worker On-Site Worker	Adult Adult Adult	Ingestion Dermal Inhalation	Quant. Quant. Quant.	Selected Selected Selected
Current/Future	Soil	Surface Soil	Surface Soil Surface Soil Fugitive Dusts	Trespasser Trespasser Trespasser	Adolescent Adolescent Adolescent	Ingestion Dermal Inhalation	Quant. Quant. Quant.	Selected, although due to location, unlikely scenario Selected, although due to location, unlikely scenario Selected, although due to location, unlikely scenario
Future	Soil	Surface Soil	Surface Soil Surface Soil Fugitive Dusts	On-Site Resident On-Site Resident On-Site Resident	Adult Adult Adult	Ingestion Dermal Inhalation	Quant. Quant. Quant.	Selected, although due to storage of nuclear material, highly unlikely Selected, although due to storage of nuclear material, highly unlikely Selected, although due to storage of nuclear material, highly unlikely
Future	Soil	Surface Soil	Surface Soil Surface Soil Fugitive Dusts	On-Site Resident On-Site Resident On-Site Resident	Young Child Young Child Young Child	Ingestion Dermal Inhalation	Quant. Quant. Quant.	Selected, although due to storage of nuclear material, highly unlikely Selected, although due to storage of nuclear material, highly unlikely Selected, although due to storage of nuclear material, highly unlikely
Current/Future	Soil	Surface/Subsurface Soil	Surface/Subsurface Soil Surface/Subsurface Soil Fugitive Dusts	Construction Worker Construction Worker Construction Worker	Adult Adult Adult	Ingestion Dermal Inhalation	Quant. Quant. Quant.	Selected Selected Selected
Current/Future	Soil	Surface/Subsurface Soil	Surface/Subsurface Soil Surface/Subsurface Soil Fugitive Dusts	Utility Worker Utility Worker Utility Worker	Adult Adult Adult	Ingestion Dermal Inhalation	Quant. Quant. Quant.	Selected Selected Selected
Current/Future	Surface Water	Surface Water	Surface Water Surface Water	Trespasser Trespasser	Adolescent Adolescent	Incidental Ingestion Dermal	Quant. Quant.	Selected Selected
Current/Future	Sediment	Sediment	Sediment Sediment	Trespasser Trespasser	Adolescent Adolescent	Incidental Ingestion Dermal	Quant. Quant.	Selected Selected

**Table 3
Non-Cancer Toxicity Data Summary**

Pathway: Ingestion/Dermal										
Chemicals of Concern	Chronic/Subchronic	Oral RID Value	Oral RID Units	Absorp. Efficiency (Dermal)	Adjusted RID (Dermal)	Adj. Dermal RID Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RID Target Organ	Dates of RID
Vanadium	Chronic	9.0E-03	mg/kg-d	3%	2.3E-04	mg/kg-d	Decreased hair cystine	-	USEPA 2012b RSL Table	12/12

Pathway: Inhalation							
Chemicals of Concern	Chronic/Subchronic	Inhalation RfC	Inhalation RfC Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfC Target Organ	Dates of RfC
Vanadium	Chronic	7.00E-06	mg/m3			PPRTV	12/12

Table 4 Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Future								
Receptor Population: Resident								
Receptor Age: Child								
Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Soil	On-Site Surface Soil	On-Site Surface Soil	Vanadium	Decreased hair cystine	1.9E+00	2.5E-01	NA	2.1E+00
			Exposure Medium Total					

Table 4 Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Construction Worker								
Receptor Age: Adult								
Medium	Exposure Medium	Exposure Point	Chemical Of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			Exposure
					Ingestion	Inhalation	Dermal	
Soil	On-Site Surface/Subsurface Soil	On-Site Surface/Subsurface Soil	Vanadium	Decreased hair cystine	3.2E-01	1.6E+00	NA	2.0E+00
			Exposure Medium Total					

Table 5

Risk-Based Sediment Preliminary Remediation Goals

Sediment COCs	Mean Sediment Concentration (mg/kg) ¹	Benthic Community Proposed PRG (mg/kg) ²	Wildlife Potential PRGs (mg/kg) ³							
			Muskrat		Mallard		Little Brown bat		Tree Swallow	
			LOAEL	MATC	LOAEL	MATC	LOAEL	MATC	LOAEL	MATC
Chromium	1923	1275	6190	1250	1400	578	5930	1200	616	254
Copper	76.8	223	NA	NA	NA	NA	NA	NA	NA	NA
Lead	83.6	303	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	136	107	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	486	574	NA	NA	NA	NA	102.0	80.3	7.10	5.86

Notes:

Values in bold represent proposed preliminary remediation goals (PRGs).

¹ Mean sediment concentrations from aquatic habitat area.

² Based on toxicity test results from the Hudson Branch sediment samples.

³ Sediment concentration resulting in HQ of 1 for MATC or LOAEL TRV

Table 5a

Risk- Based Surface Soil Preliminary Remediation Goals

Surface Soil COPEC	Mean Surface Soil/Overbank Sediment Concentration (mg/kg) ¹	Wildlife Potential PRGs (mg/kg) ²			
		Short-Tailed Shrew		American Robin	
		LOAEL	MATC	LOAEL	MARTC
Eastern Storage Areas					
Chromium	162	366	74	108	44.4
Vanadium	1017	322	255	63	52.5
Hudson Branch Wetland					
Chromium	669	1290	261	380	157
Vanadium	507	NA	NA	39	32

Notes:

Values in bold represent proposed preliminary remediation goals (PRGs).

¹ Mean surface soil concentrations from terrestrial habitat area.

² Surface soil concentration resulting in HQ of 1 for MATC and LOAEL TRVs

Table 6
Semi-Aquatic Wildlife Receptors Mean UCL and Mean Risk Characterization - Hudson Branch
SMC Superfund Site
Newfield, New Jersey

Sediment COPEC	Avian MATC TRV (mg/kg-BW/day) ¹	Mammalian MATC TRV (mg/kg-BW/day) ²	Mean UCL Muskrat Dose (mg/kg/BW-day)	Mean UCL Mallard Dose (mg/kg/BW-day)	Mean UCL Little Brown Bat Dose (mg/kg/BW-day)	Mean UCL Tree Swallow Dose (mg/kg/BW-day)	Mean UCL Muskrat MATC HQ ³	Mean UCL Mallard MATC HQ ³	Mean UCL Little Brown Bat MATC HQ ³	Mean UCL Tree Swallow MATC HQ ³
Antimony	NA	0.40	NRP	NRP	0.00E+00	NRP	-	-	0E+00	-
Barium	29.5	-	NRP	NRP	NRP	1.89E+01	-	-	-	6E-01
Chromium	6.46	11.8	3.40E+01	4.03E+01	3.54E+01	9.17E+01	3E+00	6E+00	3E+00	1.4E+01
Copper	25.4	-	NRP	NRP	NRP	2.85E+01	-	-	-	1E+00
Mercury	0.087	-	NRP	NRP	NRP	1.66E-01	-	-	-	2E+00
Vanadium	1.42	9.44	NRP	NRP	9.85E+01	2.55E+02	-	-	1.0E+01	1.8E+02
Total Hazard Index							3E+00	6E+00	1.3E+01	1.97E+02
Sediment COPEC	Avian MATC TRV (mg/kg-BW/day) ¹	Mammalian MATC TRV (mg/kg-BW/day) ²	Mean Muskrat Dose (mg/kg/BW-day)	Mean Mallard Dose (mg/kg/BW-day)	Mean Little Brown Bat Dose (mg/kg/BW-day)	Mean Tree Swallow Dose (mg/kg/BW-day)	Mean Muskrat MATC HQ ³	Mean Mallard MATC HQ ³	Mean Little Brown Bat MATC HQ ³	Mean Tree Swallow MATC HQ ³
Antimony	NA	0.40	NRP	NRP	0.00E+00	NRP	-	-	0E+00	-
Barium	29.5	-	NRP	NRP	NRP	1.45E+01	-	-	-	5E-01
Chromium	6.46	9.18	1.81E+01	2.15E+01	1.89E+01	4.89E+01	2E+00	3E+00	2E+00	8E+00
Copper	25.40	-	NRP	NRP	NRP	1.33E+01	-	-	-	5E-01
Mercury	0.087	-	NRP	NRP	NRP	9.28E-02	-	-	-	1E+00
Vanadium	1.42	6.04	NRP	NRP	4.52E+01	1.17E+02	-	-	7E+00	8.2E+01
Total Hazard Index							2E+00	3E+00	1E+01	9.2E+01

Notes:
¹ Avian MATC TRVs from Table 4-13 (applies to mallard and tree swallow).
² Mammalian MATC TRVs from Table 4-13 (applies to muskrat and little brown bat).
³ HQ (Hazard Quotient) = Mean or Mean UCL exposure dose / TRV.
 NA - Not available
 NRP - No risk predicted (not at risk based on results of SLERA).

Table 6a
Terrestrial Wildlife Receptors Mean UCL and Mean Risk Characterization - Eastern Storage Areas and Hudson Branch Wetland
SMC Superfund Site
Newfield, New Jersey

Surface Soil COPEC	Avian MATC TRV (mg/kg-BW/day)	Mammalian MATC TRV (mg/kg-BW/day)	Eastern Storage Areas		Hudson Branch Wetlands		Eastern Storage Areas		Hudson Branch Wetlands		
			Mean UCL Shrew Dose (mg/kg/BW-day)	Mean UCL Robin Dose (mg/kg/BW-day)	Mean UCL Shrew Dose (mg/kg/BW-day)	Mean UCL Robin Dose (mg/kg/BW-day)	Mean UCL Shrew MATC HQ	Mean UCL Robin MATC HQ	Mean UCL Shrew MATC HQ	Mean UCL Robin MATC HQ	
Chromium	6.46	11.8	3.82E+01	3.50E+01	8.65E+01	7.92E+01	3E+00	5E+00	7E+00	1.2E+01	
Vanadium	1.42	7.48	6.23E+01	5.70E+01	NRP	7.17E+01	8E+00	4.0E+01	-	5.0E+01	
Total Hazard Index											
							1.2E+01	4.6E+01	7E+00	6.3E+01	
Surface Soil COPEC	Avian MATC TRV (mg/kg-BW/day)	Mammalian MATC TRV (mg/kg-BW/day)	Mean UCL Shrew Dose (mg/kg/BW-day)	Mean UCL Robin Dose (mg/kg/BW-day)	Mean UCL Shrew Dose (mg/kg/BW-day)	Mean UCL Robin Dose (mg/kg/BW-day)	Mean Shrew MATC HQ	Mean Robin MATC HQ	Mean Shrew MATC HQ	Mean Robin MATC HQ	
Chromium	6.46	11.8	2.57E+01	2.35E+01	3.02E+01	2.76E+01	2E+00	4E+00	3E+00	4E+00	
Vanadium	1.42	7.48	2.98E+01	2.73E+01	NRP	2.23E+01	4E+00	1.9E+01	-	1.6E+01	
Total Hazard Index											
							6E+00	2.3E+01	3E+00	2.0E+01	

Table 7
Chemical-Specific ARARs, TBCs, and Other Guidelines

TYPE OF ARAR or TBC	REGULATORY/ REQUIREMENT	REGULATION/ CITATION	APPLICABILITY/ RELEVANCE	SITE-SPECIFIC ARAR/TBC
Federal	Safe Drinking Water Act	40 CFR 141	Drinking water standards which apply to specific contaminants that have been determined to have an adverse impact on human health; [for surface water cleanup as needed]	ARAR for Surface water, if needed
	Toxic Substances Control Act (TSCA)	40 CFR Part 6 Appendix A	Statement of Procedures on Floodplain Management and Wetlands Protection	ARAR for Floodplain management and wetland protection
	Identification and Listing of, specific Hazardous Waste	40 CFR Part 261.3, 261.6, 261.10	Defines those wastes, which are subject to regulation as hazardous wastes, and lists specific chemical and industry-source wastes.	
	EPA Regional SLs for Residential Soil	EPA Regional Screening Levels (RSL)	risk-based concentrations derived from standardized equations combining exposure information assumptions with EPA toxicity data. They are used for site "screening" and as initial cleanup goals	TBCs for wetland soils and background soil samples.
	2009 EPA National Recommended Water Quality Criteria	Section 304(a) of the Clean Water Act (CWA)	Provide guidance for states and tribes to use in adopting water quality standards.	TBC for surface water
	2006 EPA Region III Biological Technical Assistance Group Freshwater Screening Benchmarks			TBC for sediment
State	Surface Water Quality Standards	NJAC 7:9B	NJDEP sets standards for surface water based on classes	ARAR for various contaminants
	Remediation Standards	NJAC 7:26D	Sets minimum surface water and soil remediation standards, and requires development of impact to ground water soil remediation standards	ARARs for surface water cleanup objectives.

**Table 7-Continued
Chemical-Specific ARARs, TBCs, and Other Guidelines**

TYPE OF ARAR or TBC	REGULATORY/ REQUIREMENT	REGULATION/ CITATION	APPLICABILITY/ RELEVANCE	SITE-SPECIFIC ARAR/TBC
	NJDEP Chromium Policy	Memorandum February 8, 2007	Soil screening levels for chromium and hexavalent chromium	TBCs for soil
State	Impact to ground water soil screening levels	Guidance Document for Development Of Impact To Ground Water Soil Remediation Standards Using The Soil-Water Partition Equation, Version 2.0, November 2013	Impact to ground water soil screening levels.	TBCs for soil
	NJDEP Ecological Screening Criteria	Ecological Screening Criteria March 10, 2009	Ecological screening criteria in surface water, sediment and soils	TBC for surface water, sediments and soil

Table 7a
Action-Specific ARARs TBCs, and Other Guidelines

TYPE OF ARAR or TBC	REGULATORY/ REQUIREMENT	REGULATION CITATION	APPLICABILITY/ RELEVANCE	SITE-SPECIFIC ARAR/TBC
Federal	Resource Conservation and Recovery Act (RCRA)	40 CFR 262, 263, 264, 265.	Hazardous waste handling, storage, disposal.	ARAR for off-site disposal of hazardous wastes; for on-site treatment and storage activities.
	Clean Air Act	40 CFR 50	Particulate and fugitive dust emission requirements.	ARAR for on-site activities with potential to generate particulate and/or fugitive dust emissions.
	Solid Waste Disposal Act, as amended – Regulated Levels for TCLP Constituents	42 U.S.C. §§ 6901-6992k; 40 C.F.R. Part 261	Specifies TCLP constituent levels for identifying wastes that exhibit toxicity characteristics	ARAR identify of hazardous wastes
State	Technical Requirements for Site Remediation	N.J.A.C. 7:26E	Technical requirements for remediation of contaminated sites	ARARs for investigation/ delineation of site impacts, development of remedial action plans, implementation of remedial action plans, etc..
	Administrative Requirements for the Remediation of Contaminated Sites (ARRCS)	N.J.A.C. 7:26C	Administrative requirements for remediation of contaminated sites.	ARARs for institutional controls such as deed notices,
	Soil Erosion and Sediment Control	NISA 4:24	Requirements for controlling erosion during land disturbances over 5000 sf.	ARAR for applicable activities (e.g., excavation).

Table 7b
Location-Specific ARARs, TBCs, and Other Guidelines

TYPE OF ARAR or TBC	REGULATORY/ REQUIREMENT	REGULATION/ CITATION	APPLICABILITY/ RELEVANCE	SITE-SPECIFIC ARAR/TBC
Federal	Wetlands Protection	40 CFR Part6, Appendix A, Executive Order 11990	Requires consideration of impacts to wetlands in order to minimize any destruction, loss, or degradation and to preserve their values.	ARAR for impacts/remedial action in wetlands areas and buffer zones.
	Clean Water Act, Section 404(b)(1) Guidelines [regards to wetlands]	40 CFR 230.10	Guidelines established criteria for evaluating impacts to waters of the US (including wetlands) and sets forth factors for considering mitigation measures	ARAR for impacts/remedial action in wetlands areas and buffer zones and streams.
	Floodplain Protection	40 CFR Part6, Appendix A, Executive Order 11988	Requires consideration of impacts to floodplain areas in order to minimize any flood impacts on human health, safety and welfare, reduce flood loss risks, and to preserve/restore their values.	ARAR for impacts/remedial action in floodplain areas
	Code of Federal Regulations- Location Standards [regards to floodplains]	40 CFR 264.18	Regulates the design, construction, operation, and maintenance of hazardous waste management facilities within the 100-year floodplain.	ARAR for impacts/remedial action in floodplain areas.
State	Wetlands Protection Regulations	NJAC 7:7A	Regulates the disturbance or alteration of freshwater wetlands and their respective buffer.	ARAR for impacts/remedial action in wetlands areas and buffer zones.
	Freshwater Wetlands Protection Act	N.J.S.A. 13:9B-1 et seq.	Related to Freshwater wetlands permit, procedures, and exemption to engage or work in wetland areas.	ARAR for impacts/remedial action in wetlands areas and buffer zones.
	Floodplain/Flood Hazard Area Protection	NJAC 7:13	Regulates the disturbance, the placement of fill, grading, excavation, or other disturbance within the defined flood hazard area/ floodplain of rivers/streams.	ARAR for impacts/remedial action in floodplain areas.

Table 8
Conceptual Cost Estimate
OU2 Remedial Alternative #3: Capping of Soils, Excavating of Sediments
Shieldalloy Metallurgical Superfund Site; Newfield, NJ

Remedial Alternative Description:

Cap uncapped areas of Facility soils, excavate/restore Hudson Branch sediments, maintain existing facility cover, facility deed notice.

CAPITAL COST

Item	Estimated Quantity	Units	Unit Price	Total Cost (rounded)
FACILITY SOILS				
Silt Fencing	2,000	LF	\$ 5	\$ 10,000
Cap (gravel)	4,000	CY	\$ 22	\$ 88,000
Geotextile (demarcation)	1.3	acres	\$ 7,600	\$ 10,000
Deed notice	1	LS	\$ 50,000	\$ 50,000
HUDSON BRANCH				
<u>Temporary Items</u>				
Temporary Fencing	10,000	LF	\$ 11	\$ 110,000
Mobilization/Demobilization	4	per event	\$ 50,000	\$ 200,000
Silt Fencing	10,000	LF	\$ 5	\$ 50,000
Water Pumping/Treatment/Facilities	5	month	\$ 50,000	\$ 250,000
Temporary Construction Roads/Access	7,000	ft	\$ 31	\$ 217,000
<u>Excavation</u>				
Clearing and Grubbing	4.9	acre	\$ 7,000	\$ 30,000
Excavation	9,800	cy	\$ 30	\$ 294,000
Handling/drying	9,800	cy	\$ 5	\$ 49,000
Stabilization (assumed % to render it non-haz)	980	cy	\$ 60	\$ 60,000
	10%			
Offsite Transportation and Disposal	13,700	ton	\$ 80	\$ 1,096,000
<u>Backfill/Restoration</u>				
Top Soil	9,800	cy	\$ 45	\$ 441,000
Seeding	4.9	acre	\$ 5,000	\$ 25,000
Erosion Mats	4.9	acres	\$ 17,000	\$ 83,000
Subtotal Direct Construction Costs				\$ 3,063,000
Contingency 20%				\$ 612,600
Project Management 10%				\$ 306,300
Remedial Design 10%				\$ 306,300
Engineering and Construction Management 10%				\$ 306,300
Legal and Administrative 5%				\$ 153,150
EPA Oversight Fees 5%				\$ 153,150
TOTAL CONSTRUCTION COSTS (rounded)				\$ 4,901,000

Table 8
Conceptual Cost Estimate
OU2 Remedial Alternative #3: Capping of Soils, Excavating of Sediments
Shieldalloy Metallurgical Superfund Site; Newfield, NJ

Remedial Alternative Description:

Cap uncapped ares of Facility soils, excavate/restore Hudson Branch sediments, maintain existing facility cover, facility deed notice.

O&M Costs

Item	Frequency	Quantity	Units	Rate/Cost Per Event	Total Cost (rounded)
Inspection/repair--all facility fencing*	30	66 LF	LS	\$ 23	\$ 46,000
Inspection/repair--all facility caps/covers*	30	0.7 acre	LS	\$ 15,000	\$ 315,000
Hudson Branch repair	1 Years	5	LS	\$ 20,000	\$ 100,000
5-year review	5	5	LS	\$ 10,000	\$ 50,000
*Performed by site owner					
Sub-Total OM&M (30 Years):					\$ 511,000
Contingency 20%					\$ 102,000
Project Management 10%					\$ 51,000
Remedial Design 10%					\$ 51,000
Construction Management 10%					\$ 51,000
Legal and Administrative 5%					\$ 26,000
EPA Oversight Fees 5%					\$ 26,000
TOTAL OM&M COSTS:					\$ 818,000
TOTAL PROJECT COSTS (UNADJUSTED For NPV):					\$ 5,719,000

NPV ANALYSIS

Sub-Total OM&M (30 Years from next table):	\$	253,700
O&M COST MARKUPS		
Contingency 20%	\$	50,740
Project Management 10%	\$	25,370
Remedial Design 10%	\$	25,370
Construction Management 10%	\$	25,370
Legal and Administrative 5%	\$	12,685
EPA Oversight Fees 5%	\$	12,685
TOTAL OM&M COSTS (rounded):	\$	406,000
TOTAL PRESENT VALUE PROJECT COSTS:		\$ 5,307,000

Table 8a
Conceptual Cost Estimate
OU2 Remedial Alternative #3: Capping of Soil, Excavating Sediment NPV
Shieldalloy Metallurgical Superfund Site; Newfield, NJ

YEAR	CAPITAL COST	OM&M COSTS (W/CONTINGENCY)					Total Annual Cost (Rounded, Not Adjusted for Inflation)	PRESENT VALUE (AT 7% DISCOUNT RATE)
		Annual OM&M			Periodic OM&M			
		Fencing repairs	Cap Repairs		Hudson Branch Repairs	5-year review		
0	\$ 4,901,000			\$ -			\$ 4,901,000	
1		\$ 1,518	\$ 10,500		\$ 20,000	\$ 32,100	\$30,000	
2		\$ 1,518	\$ 10,500		\$ 20,000	\$ 32,100	\$28,037	
3		\$ 1,518	\$ 10,500		\$ 20,000	\$ 32,100	\$26,203	
4		\$ 1,518	\$ 10,500		\$ 20,000	\$ 32,100	\$24,489	
5		\$ 1,518	\$ 10,500		\$ 20,000	\$ 42,100	\$30,017	
6		\$ 1,518	\$ 10,500			\$ 12,100	\$8,063	
7		\$ 1,518	\$ 10,500			\$ 12,100	\$7,535	
8		\$ 1,518	\$ 10,500			\$ 12,100	\$7,042	
9		\$ 1,518	\$ 10,500			\$ 12,100	\$6,582	
10		\$ 1,518	\$ 10,500			\$ 22,100	\$11,235	
11		\$ 1,518	\$ 10,500			\$ 12,100	\$5,749	
12		\$ 1,518	\$ 10,500			\$ 12,100	\$5,373	
13		\$ 1,518	\$ 10,500			\$ 12,100	\$5,021	
14		\$ 1,518	\$ 10,500			\$ 12,100	\$4,693	
15		\$ 1,518	\$ 10,500		\$ 10,000	\$ 22,100	\$8,010	
16		\$ 1,518	\$ 10,500			\$ 12,100	\$4,099	
17		\$ 1,518	\$ 10,500			\$ 12,100	\$3,831	
18		\$ 1,518	\$ 10,500			\$ 12,100	\$3,580	
19		\$ 1,518	\$ 10,500			\$ 12,100	\$3,346	
20		\$ 1,518	\$ 10,500		\$ 10,000	\$ 22,100	\$5,711	
21		\$ 1,518	\$ 10,500			\$ 12,100	\$2,922	
22		\$ 1,518	\$ 10,500			\$ 12,100	\$2,731	
23		\$ 1,518	\$ 10,500			\$ 12,100	\$2,552	
24		\$ 1,518	\$ 10,500			\$ 12,100	\$2,385	
25		\$ 1,518	\$ 10,500		\$ 10,000	\$ 22,100	\$4,072	
26		\$ 1,518	\$ 10,500			\$ 12,100	\$2,084	
27		\$ 1,518	\$ 10,500			\$ 12,100	\$1,947	
28		\$ 1,518	\$ 10,500			\$ 12,100	\$1,820	
29		\$ 1,518	\$ 10,500			\$ 12,100	\$1,701	
30		\$ 1,518	\$ 10,500		\$ 10,000	\$ 22,100	\$2,903	
		7% Discount Factor					Total Unadjusted Costs: \$ 523,000	
							Total Discounted OM&M Costs (rounded):	\$253,700

Appendix III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

07/03/2013

Region ID: 02

Site Name: SHIELDALLOY CORP.
 CERCLIS: NJD002365930
 OUID: 02
 SSID: 0287
 Action:

DocID:	Date:	Title:	Image Count:	CD:	Doc Type:	Author Name:	Author Organization:	Addressee Name:	Addressee Organization:
210458	7/3/2013	ADMINISTRATIVE RECORD INDEX FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	2		[INDEX]	[,]	[US ENVIRONMENTAL PROTECTION AGENCY]	[]	[]
210457	5/1/2011	HEALTH AND SAFETY AND EMERGENCY ACTION PLAN FOR OU1 AND OU2 FOR THE SHIELDALLOY CORPORATION SITE	171		[PLAN]	[,]	[TRC ENGINEERS INCORPORATED]	[]	[]
210450	5/20/2011	DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION WORKPLAN FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	101		[PLAN]	[,]	[TRC ENGINEERS INCORPORATED]	[]	[]
210455	9/1/2011	QUALITY ASSURANCE PROJECT PLAN FOR THE SUPPLEMENTAL REMEDIAL INVESTIGATION (INCLUDING BASELINE ECOLOGICAL RISK ASSESSMENT) FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	1076		[PLAN]	[,]	[TRC COMPANIES, INC.]	[]	[]
210449	9/9/2011	TRC SOLUTIONS RESPONSE TO US EPA COMMENTS AND ADDENDUM TO THE SHIELDALLOY METALLURGICAL CORPORATION FACILITY OU2 SUPPLEMENTAL REMEDIAL INVESTIGATION WORKPLAN FOR THE SHIELDALLOY CORPORATION SITE	34		[OUTLINE]	[,]	[TRC]	[]	[]
210459	9/9/2011	TRANSMITTAL OF TRC SOLUTIONS RESPONSE TO US EPA COMMENTS AND ADDENDUM TO THE SHIELDALLOY METALLURGICAL CORPORATION FACILITY OU2 SUPPLEMENTAL REMEDIAL INVESTIGATION WORKPLAN FOR THE SHIELDALLOY CORPORATION SITE	1		[LETTER]	[HANSEN, PATRICK J]	[TRC COMPANIES, INC.]	[HENRY, SHERRYL D]	[EPA, REGION 2]

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

07/03/2013

Region ID: 02

Site Name: SHIELDALLOY CORP.
 CERCLIS: NJD002365930
 OUID: 02
 SSID: 02B7
 Action:

DocID:	Date:	Title:	Image Count:	CD:	Doc Type:	Author Name:	Author Organization:	Addressee Name:	Addressee Organization:
210451	9/30/2011	US EPA APPROVAL OF THE QUALITY ASSURANCE PROJECT PLAN (QAPP) FOR OU2 AND THE SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN AND ADDENDUM FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	1		[LETTER]	[HENRY, SHERREL D]	[EPA, REGION 2]	[HANSEN, PATRICK J]	[TRC COMPANIES, INC.]
210452	2/1/2013	DRAFT FINAL BASELINE ECOLOGICAL RISK ASSESSMENT FOR OU2 - VOLUME IV: APPENDIX B OF THE REMEDIAL INVESTIGATION REPORT FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	328		[REPORT]	[.]	[TRC ENGINEERS INCORPORATED]	[]	[]
210453	2/1/2013	FINAL SITE CHARACTERIZATION SUMMARY REPORT TEXT AND FIGURES FOR OU2 - VOLUMES II AND III: APPENDIX A OF THE REMEDIAL INVESTIGATION REPORT FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	435		[REPORT]	[.]	[TRC ENGINEERS INCORPORATED]	[]	[]
210456	2/1/2013	REVISED DRAFT BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU2 - VOLUME V: APPENDIX C OF THE DRAFT REMEDIAL INVESTIGATION REPORT FOR OU2 FOR THE SHIELDALLOY CORPORATION SITE	579		[REPORT]	[.]	[TRC ENGINEERS INCORPORATED]	[]	[]

Appendix IV

STATE CONCURRENCE LETTER



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHRIS CHRISTIE
Governor
KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

Site Remediation Program
Mail Code 401-406
P.O. Box 420
Trenton, NJ 08625-0420
Phone #: 609-292-1250

Walter Mugdan, Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency Region II
290 Broadway
New York, NY 10007-1866

SEP 23 2014

Re: Shieldalloy Metallurgical Corporation
35 South West Blvd
Newfield, Gloucester County

Dear Mr. Mugdan:

The New Jersey Department of Environmental Protection (Department) has completed review of the Record of Decision (ROD) for Operable Unit 2 (OU2) for the Shieldalloy Metallurgical Corporation Superfund Site. The ROD was prepared by the U.S. Environmental Protection Agency (EPA) and addresses non-perchlorate contaminated soil, sediments and surface water. The Department concurs with the selected remedy, which includes:

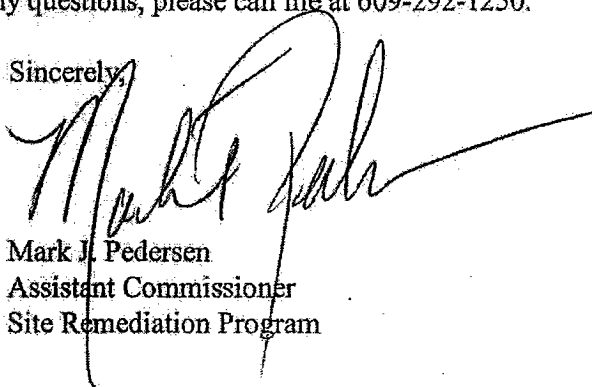
- Capping 1.3 acres of vanadium- and chromium-impacted on-site soils
- Excavating non-perchlorate contaminated Hudson Branch sediments
- Monitoring surface water to ensure surface water quality standards are met
- Backfilling excavated areas with clean material and restoring
- Establishing institutional controls (i.e. deed notice)
- Maintaining existing engineering controls
- Delineating vanadium and chromium in the Lower Hudson Branch to identify areas that may require excavation
- Reviewing site conditions every five years

The selected remedy was chosen in accordance with the comprehensive Environmental Response, Compensation, and Liability Act, as amended, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision is based on the Administrative Record file for this site. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial actions, is cost effective, and uses permanent solutions and treatment technologies to the maximum extent practicable.

The Department appreciates the opportunity to participate in the decision making process to select an appropriate remedy. If you have any questions, please call me at 609-292-1250.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark J. Pedersen", with a long horizontal flourish extending to the right.

Mark J. Pedersen
Assistant Commissioner
Site Remediation Program

~~c: Donna L. Gaffigan, Case Manager~~

Appendix V

RESPONSIVENESS SUMMARY

SHIELDALLOY METALLURGICAL CORPORATION SUPERFUND SITE OU2 ROD

APPENDIX V

RESPONSIVENESS SUMMARY

INTRODUCTION

This Responsiveness Summary provides a summary of comments and concerns received during the public comment period related to the Shieldalloy Metallurgical Corporation Superfund site Proposed Plan and provides the U.S. Environmental Protection Agency's (EPA's) responses to those comments and concerns. All comments summarized in this document have been considered in EPA's final decision in the selection of the remedy to address the contamination at the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

EPA's Proposed Plan for the OU2 soil, sediment and surface water remediation was released to the public on June 27, 2014. A copy of the Proposed Plan, RI sampling results, FS for soil, sediment and surface water remediation alternatives and other documents which comprise the administrative record file were made available to the public in the information repository located at the Newfield Public Library as well as the EPA Region 2's Record Center. A public notice was published in *Vineland's Daily Journal* on June 27, 2014, advising the public of the availability of the Proposed Plan. This notice also announced the opening of a 30-day public comment period, from June 27, 2014 to July 28, 2014, and invited the interested parties to attend an upcoming public meeting. At this public meeting, held on July 9, 2014, at the Edgerton Christian Academy¹ at 212 Catawba Avenue, Newfield, New Jersey, EPA presented the preferred alternative for the OU2 contaminated soil, sediment and surface water remedy, answered questions regarding the Shieldalloy Metallurgical Corporation site, and accepted verbal comments regarding the Proposed Plan.

SUMMARY OF COMMENTS AND RESPONSES

Comments were received at the public meeting and in writing (letters and e-mail). The public generally support the remedy selected for the Hudson Branch sediment (excavation and off-site disposal), but most did not agree with the portion of the remedy selected for facility soils (capping and institutional controls). Written and oral comments included strongly contrary

¹ Please note that both the Proposed Plan and the public notice advertised that the public meeting would be held at the Newfield Borough Hall located at 18 Catawba Avenue, Newfield, New Jersey. However, because of a scheduling conflict that arose with the Town Board, the meeting place was changed. Proper notification was given in the form of posting the new venue on the EPA's web page, sending a press release to the local newspapers and posting signs with the new venue at the Newfield Borough Hall.

positions, with several parties such as TRC strongly advocating for the on-site capping of vanadium- and chromium-impacted soils, and other parties, for example, Gloucester County Board of Chosen Freeholders and the Green Action Alliance, opposing on-site capping, and preferring excavation and off-site transportation and disposal. Both approaches were considered in the FS and the Proposed Plan. EPA's rationale for selecting capping is included in the Decision Summary. Please see also EPA's response to Comment 17, below.

The transcript from the public meeting can be found in Appendix V-a.

The written comments (letters and e-mail) submitted during the comment period can be found in Appendix V-b. A summary of the comments provided at the public meeting and in writing, as well as the EPA's responses to them, are provided below.

Note: Several statements at the meeting raised the issue of the radioactive slag materials that are present at the Shieldalloy property. These materials are regulated by Nuclear Regulatory Commission/New Jersey Department of Environmental Protection and are not part of the EPA Superfund process. As such, the radioactive slag materials are beyond the scope of the OU2 public comment period and this responsiveness summary.

Scope and Role of Operable Units

Comment 1. A commenter stated that "before anything is done," there should be a groundwater study of this site by the U.S. Geological Survey, and noted that a million dollar treatment system is in place for the two [public water supply] wells in town. Another commenter asked for a description of the pilot studies that are currently underway concerning the remediation of groundwater contamination at the site.

EPA Response. The groundwater at the site is being addressed separately as OU1. The extraction and treatment system that is operating to clean up the groundwater plume of contamination is currently being evaluated and this evaluation, which includes pilot studies on other remedial options, may lead to changes are to improve its effectiveness. The pilot studies that are part of OU1 will be discussed in an OUI Proposed Plan, which is expected to be released for public comment in fall of 2015. Be that as it may, the groundwater plume is not currently affecting the public supply wells and they are not threatened by the site.

Comment 2. A commenter asked for a discussion of the analytical results from sampling of two outfalls and information on the flow associated with them, along with a map of the facility's storm systems.

EPA Response. Sampling of the two permitted outfalls are performed as part of the OU1 groundwater study. Facility storm water and treated water from the on-site groundwater treatment system was discharged to the on-site impoundment located near the southwest corner of the Facility, during treatment plant operations. The treated water was tested during treatment plant operations, and the surface water collected in the impoundments never came in contact with

contaminated material. One of the outfalls is located at the northwest corner of the on-site impoundment and is the pump and treatment system's discharge point into the impoundment. The other outfall conducts water from the impoundment into the ditch that flows towards Hudson Branch. The ditch is located at the southwest corner of the on-site impoundment. Monthly surface water sampling associated with the treatment plant operations indicates that no surface water exceedances were measured leaving the on-site impoundment. This information, as well as a map of the facility's storm system, will be included in the OU1 Record of Decision Amendment, which is expected to be finalized in fall of 2015.

Comment 3. A commenter asked for a description of the stream gauging program on Hudson Branch and a discussion on the interaction between the aquifer and the stream.

EPA Response. The stream gauging program pertains to the groundwater studies being evaluated for OU1. Hudson Branch is typically a losing stream, with surface water of the stream recharging the aquifer (rather than groundwater discharging into the stream). As part of the groundwater cleanup, we need to fully understand how the groundwater moves, including whether it comes in contact with the stream.

NPL Listing

Comment 4. A commenter asked what the site ranking was on the NPL. Another commenter stated that the fact that the Shieldalloy site is on the Superfund List in itself indicates "a risk factor to the Newfield residents and others beyond."

EPA Response. The site was listed on the NPL with a ranking value of 58.75. Sites with a value of 28.5 or above qualify for inclusion on the NPL. Following NPL listing, the EPA uses its human health risk assessment (HHRA) process and data from a comprehensive remedial investigation, rather than the limited information available at the time of the NPL listing, to quantify risks to receptors at or near a Superfund site.

Remedial Investigation

Comment 5. A commenter asked for a chart of surface water, soils, and sediments sampling results and a map of all sampling locations. Another commenter asked that EPA collect samples of stormwater runoff from the slag pile to evaluate potential impacts to soils, wetlands, sediments, and Hudson Branch.

EPA Response. Surface water, soils, and sediments sampling results were summarized in the Proposed Plan and are included in the Decision Summary of the ROD under the Results of the Remedial Investigation section. Further, samples locations and results are presented in Figures 11-28 in the remedial investigation (RI) report, entitled *Draft Final OU2 Remedial Investigation Report, Volume I-RIR text and figures*, dated July 2013. The OU2 RI report is available in the administrative record file and site repositories. Radiological contamination located in the restricted area on the SMC facility is not part of the Superfund site and is being addressed by

NJDEP, as authorized by the U.S. Nuclear Regulatory Commission (NRC). Further information about the environmental response actions to address the restricted area is available from NJDEP.

Comment 6. A commenter asked if soil was sampled in the vicinity of Burnt Mill Pond. Another commenter asked about whether contaminant concentrations in the soil samples have increased.

EPA Response. Transported sediment tends to settle as it flows from a stream to a pond, because the velocity of the water slows in the pond and the sediments drop out of the water column. In studying the stream channel, depositional zones were identified and sampled, and there were infrequent detections of site contaminants and only at low concentrations, supporting the conclusion that the stream is not a significant transport mechanism for site contaminants. Because the stream is not a significant transport mechanism, the sediment or soil outside of the channel of Burnt Mill Pond was not sampled.

Burnt Mill Pond sediment was sampled, at locations along the channel at the bottom of Burnt Mill Pond. These sample locations were chosen because a fate and transport analysis indicated that, if site material were being transported, it would be transported primarily along the channel and would be expected to have the highest concentration of contaminants. Samples collected from the channel locations did not present a risk; therefore, other locations would not be expected to present a risk.

Comment 7. A commenter asked that the Human Health Risk Assessment include an evaluation of human health risks to the Borough residents and other receptors.

EPA Response. EPA conducts a HHRA to evaluate site related risks to current and potential future receptors. Borough residents were evaluated as current/future recreational trespassers, current/future on-site workers, current/future utility/construction workers and future on-site residents. These were the most likely exposure pathways and were expected to yield the greatest risk. The results of the risk assessment are used to determine if the site poses an unacceptable risk, indicating the need for remediation.

Comment 8. A commenter asked about the risk to someone using the Pond for recreation (Burnt Mill Pond, which is located in a public park), compared to the risk to the recreational trespasser evaluated in the Human Health Risk Assessment.

EPA Response. In the Human Health Risk Assessment, the exposure frequency for the recreational trespasser was a total of 52 days per year, based on two days per week in the 13 weeks of summer and one day per week in the 26 weeks of spring and fall. EPA believes that an exposure frequency of 52 days per year appropriately reflects the maximum exposure to the Burnt Mill Pond material that is reasonably anticipated to occur at the site regardless of whether the access was gained by trespassing or not. In addition, EPA performed a back-calculation to determine the greatest exposure frequency that yields an acceptable risk, which is an exposure frequency of 260 days per year. This greater exposure frequency can be expressed as exposure to the material for 70 percent of the year, or six days per week during the 13 weeks of summer and

five days per week during the 26 weeks of spring and fall. With an exposure frequency of 260 days, the excess lifetime cancer risk is 4×10^{-04} and the noncancer health hazard is 6×10^{-02} , which are still within acceptable risk levels established by CERCLA. Details regarding the calculations of the new exposure scenario are documented in the *Human Health Risk Assessment Addendum* dated August 12, 2014, which has been added to the administrative record file.

Comment 9. A commenter asked whether trucks leaving the site should be decontaminated.

EPA Response. Access to contaminated areas is currently restricted, so that vehicles entering and leaving the site today are not coming in contact with contaminated material and do not need to be washed down. As part of health-and-safety procedures during a cleanup, trucks that travel into “exclusion zones,” (where the contamination is located) need to be decontaminated upon leaving that restricted area.

Comment 10. EPA should review the stormwater systems for new developments which are to be constructed along Catawba Avenue.

EPA Response. Stormwater systems for new developments to be constructed along Catawba Avenue are unlikely to have any impact on remediation of facility soils and sediment in Hudson Branch and, therefore, it is not necessary for EPA to review these stormwater systems prior to issuance of this OU2 ROD. Surface water drainage issues are important for the implementation of the remedy, and the remedial design will need to include information about current surface water drainage features prior to starting the cleanup.

Feasibility Study & Proposed Plan

Comment 11. A commenter expressed support for Alternative 3, stating that it is consistent with Superfund law and the National Oil and Hazardous Substances Contingency Plan (NCP), including the nine evaluation criteria as well as EPA policy and precedent. Several other commenters expressed opposition to Alternative 3 (for example, “I’m opposed to Alternative 3 because [capping doesn’t] do any good because those metals and chemicals are still so extremely high;” and Alternative 3 “represents placing a Band-Aid on a dirty/infected cut”). Another commenter asked whether contamination continues under the cap.

EPA Response. Alternative 3 calls for capping of 1.3 acres of soil in the eastern storage area, excavating 9,800 cubic yards sediments in Hudson Branch, institutional controls and five-year reviews to ensure that the remedy remains protective of human health and the environment. Alternative 3 meets the expectations established by the NCP § 300.430(a)(iii)(B), which states that EPA expects to use engineering controls, such as containment, for waste that poses a relatively low long-term threat or where treatment is impracticable. Alternative 3 is protective of human health and the environment, provides long-term effectiveness, will achieve the ARARs in a reasonable time frame, and is cost-effective.

Further, the proposed capping of 1.3 acres of soil in the eastern storage areas is appropriate for

the type and degree of soil contamination (vanadium and chromium), is consistent with prior capping that has been completed in other areas of the facility, and fits the current and reasonably anticipated land use (commercial/industrial). Capping of the eastern storage area soil is not designed to reduce the concentration levels of contaminants in the soil. The purpose of the cap is to reduce the risk from exposure by preventing direct contact with the soils. Capping is a readily implementable technology that has been used successfully throughout the country and world.

Comment 12. A commenter asked if the Borough would receive a yearly fee for capping.

EPA Response. Alternative 3 does not call for annual payments to the Borough.

Comment 13. Several commenters addressed the future land use of the site, stating that the site should be cleaned up to the highest standard, which is for residential land use. A commenter asked how much land would be capped and available for commercial or industrial use under Alternative 3.

EPA Response. The reasonable anticipated future land use at the site is commercial/industrial. Alternative 3 calls for capping of approximately 1.3 acres in the eastern storage areas; this area and other capped areas at the site would be available for commercial or industrial uses.

Comment 14. A commenter asked about the cost of monitoring every five years, and how we would know what happens between year two and year four under the cap.

EPA Response. The monitoring is estimated to cost \$32,100 each year (\$170,500 over five years, plus an additional \$10,000 for the five-year review reporting). The monitoring results will be reviewed as the data become available and will be presented periodically (e.g., annual or semi-annual reports). In addition, CERCLA and the NCP require a Five Year Review to evaluate the selected remedy at least once every five years to determine whether it continues to be protective of human health and the environment.

Comment 15. A commenter opposed all alternatives because they incorporate the use of institutional controls (“I don’t like any of them, even Alternative 4 that they have institutional controls, where they have deed restrictions for residential and commercial use.”).

EPA Response. Institutional controls (ICs) are a viable option that help to minimize the potential for exposure to contamination and serve to protect the integrity of the cap. In addition, ICs will ensure that all existing covers/caps are not disturbed (for example, should a building be removed, the former building footprint must be paved to maintain existing cover/cap).

Comment 16. A commenter requested that all contaminated materials (soils, sediments, slag, dust, building materials) from the site be removed and transported to an NJDEP-approved, off-site disposal facility. Another commenter asked for the rationale for the EPA’s preference of Alternative 3 over Alternative 4. A commenter stated that the current or future risk reduction

offered by Alternative 4 was worth the additional \$6 million to \$12 million above the cost of Alternative 3.

EPA Response. EPA considered the nine evaluation criteria of the Superfund program in proposing Alternative 3. The only difference between Alternatives 3 and 4 is with respect to soil in the eastern storage area. Alternative 3 calls for capping the soil (1.3 acres), whereas Alternative 4 calls for excavating the soil (21,000 cubic yards). Alternative 3 will provide a comparable overall level of protection to Alternative 4 and ranks higher than Alternative 4 with respect to the following evaluation criteria: short-term effectiveness, implementability. In addition, Alternative 4 is 52 percent more costly, without providing commensurate risk reduction.

Comment 17. A commenter stated that Alternative 3 is preferred because it is “greener” than Alternative 4.

EPA Response. The statement is accurate. Although not one of the nine evaluation criteria, EPA also has a green remediation policy, established in 2009, which expresses a preference for incorporating green technologies into cleanup decisions. Alternative 4 does not fully support Green Remediation Principles because it uses more energy and produces more emissions (though only in the short term) than Alternative 3.

Comment 18. A commenter asked about the cleanup standards for sediments in Burnt Mill Pond, a public park, and suggested that the sediment would have to be cleaned up to a residential standard. Another commenter stated that there is no ARAR (applicable or relevant and appropriate standard) for sediment.

EPA Response. NJDEP does not have cleanup standards for sediment (NJAC 7:26D). For sediment in recreational areas, NJDEP recognizes that it is appropriate to develop site-specific criteria that fit the actual exposures that might occur there (including a site used for recreational purposes). Appendix D of the NJDEP remediation standards says: “An alternative remediation standard may be based on use of the site for recreational purposes.” The EPA risk-based approach is consistent with NJDEP procedures. Remediation goals were developed for the sediments and are presented in remediation goal section of the ROD.

Comment 19. A commenter requested that EPA clarify NJDEP’s position on the Preferred Alternative. The report states that NJDEP is evaluating the preferred alternative and then states that NJDEP believes that the alternative will be protective of human health and the environment.

EPA Response. NJDEP’s letter of concurrence with the EPA’s selected remedy is included in Appendix IV of the OU2 ROD.

Comment 20. A commenter asked about the permits that will be needed for the project (i.e. NJDEP, Gloucester County Soil Conservation District).

EPA Response. The acquisition of permits is not required for Superfund on-site remedial actions. However, as required by Superfund, all substantive provisions of permitting regulations that are applicable or relevant and appropriate requirements (ARARs) will need to be met.

Remedial Design

Comment 21. A commenter asked for a discussion on the quality assurance-quality control requirements (QA-QC) Plan for the project and a discussion of the monitoring program for the wetlands along the Hudson Branch.

EPA Response. A monitoring program will be developed for OU2 during the remedial design phase and will be documented in the operation and maintenance (O&M) plan. The O&M plan will include requirements for wetland and Hudson Branch monitoring, including the QA-QC requirements.

Enforcement

Comment 22. A commenter asked who is responsible for conducting the monitoring programs. Another commenter asked how long negotiations would take. A commenter asked about the Shieldalloy Company's commitment to funding the cleanup at the facility and whether they have the financial resources available to remediate the site. Another commenter asked about the availability of Superfund funds for the project.

EPA Response. EPA selects a remedy under the Superfund law in a Record of Decision. The Superfund law allows the EPA to clean up hazardous waste sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-lead cleanups. Until the Record of Decision is issued, there typically are no settlement discussions with PRPs with respect to their liability to conduct the remediation or to reimburse EPA for its costs of response. EPA will seek to have the PRPs conduct the remedy or, in the alternative, will seek to have the PRPs reimburse EPA for the costs of response. If needed, funds would be available for remediation of the site. The EPA generally estimates one year for negotiations to perform the remedial design and remedial action. The responsibility for conducting the monitoring program is dependent on whether the EPA is or the PRPs are performing the work at the site.

Community Relations

Comment 23. The Gloucester County Board of Chosen Freeholders formally request to be kept informed of current and future EPA and NJDEP activities and studies at the site for OU1, OU2, OU3 and the slag pile.

EPA Response. The Gloucester County Board of Chosen Freeholders has been added to the site mailing list to receive information about future activities at the site.

RESPONSIVENESS SUMMARY

APPENDIX V-a

JULY 9, 2014 PUBLIC MEETING TRANSCRIPT

SMC Public Meemetint Transcript.txt

1

1 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2 REGION II
2 -----X
3 SHIELDALLOY METALLURGICAL CORP. SUPERFUND SITE
4 PUBLIC MEETING
5
5 -----X
6
7 Edgarton Christian Academy
8 212 Catawba Avenue
8 Newfield, New Jersey
9
10 July 9, 2014
10 7:00 p.m.
11
12
13 A P P E A R A N C E S :
14 WANDA AYALA,
15 EPA Community Involvement Coordinator
16
17 DONNA GAFFIGAN,
18 DEP Case Manager
19
20 SHERREL HENRY,
21 EPA Remedial Project Manager
22
23 MICHAEL SIVAK,
24 EPA Section Chief/Risk Assessor
25

♀

2

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MS. AYALA: Good evening,

1
2 everyone. I'd like to welcome you to
3 our meeting tonight. My name is Wanda
4 Ayala, and I'm the Community Coordinator
5 for the Shieldalloy Superfund Site.

6 Like I told most of you at the
7 entrance, I just want to clarify again,
8 that at this meeting we're not going to
9 be talking about the slag pile. This is
10 about Operable Unit 2 at the site.

11 The slag pile is under the
12 jurisdiction of the New Jersey DEP and
13 the NRC, and at this time we can't
14 comment on the issue because they're
15 going through some litigation process.

16 The way that we're going to have
17 the meeting is EPA is going to give a
18 presentation, and then we're going to
19 open up the floor for questions and
20 comments.

21 Anybody that has a question or
22 comment was assigned a number. If you
23 don't have a number and you decide that
24 you want to do that, you can pick up a
25 number in the back at any time.

♀

3

1 We always also have comment cards.
2 If you don't feel comfortable coming up
3 and talking up front, you can fill out
4 the comment card and give it to me, and

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5 I'll give it back to the team.

6 We have a stenographer here. It
7 is required by our Superfund law to have
8 a transcript of this meeting. Her name
9 is Linda Marino.

10 I'm going to ask that you put your
11 phones on vibrate so we can be
12 considerate of the people that are
13 speaking.

14 I'd like to acknowledge Daniel
15 Stapelkamp from Senator Menendez's
16 office. He's here tonight.

17 And the Fire Marshal asked me to
18 announce that we have two emergency
19 exits; one is here to my left, and the
20 one is the door that you came in
21 through. And it's a nonsmoking
22 building.

23 So, I'm going to pass the mic over
24 to Sherrel Henry --

25 MR. SIVAK: I'll take over.

♀

4

1 MS. AYALA: Okay.

2 -- who is our Project Manager, and
3 Michael Sivak, who's the Section Chief
4 of the Mega Branch Office for EPA Region
5 2.

6 MR. SIVAK: Thank you.

7 As Wanda said, welcome to our

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8 meeting this evening, where we will be
9 discussing Operable Unit 2 of the
10 Shieldalloy Metallurgical Corporation
11 Superfund Site.

12 Sherrel will talk a little bit
13 more about what Operable Unit 2 is. But
14 just to keep us on track, Operable Unit
15 2 is chemical contamination in soils,
16 surface water, and sediment -- so,
17 onsite soils, surface water, and
18 sediment -- chemical contamination that
19 does not include perchlorates. We'll
20 discuss that a little more later.

21 I'd like to take us through some
22 of our meeting participants this
23 evening.

24 You've already been introduced to
25 Sherrel Henry. She is the EPA's Project

5

1 Manager for the site.

2 Wanda Ayala, you met her. She's
3 our Community Involvement Coordinator.

4 I am Michael Sivak. I am the
5 Section Chief of the Megaprojects
6 Section of the Superfund program in New
7 York and New Jersey. And I'm also here
8 this evening subbing for our human
9 health and ecological risk assessor.
10 I'm a toxicologist by training, so I can
11 kind of talk us through a little bit

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12 about the process that was used to
13 assess human health and ecological risks
14 at this site.

15 And we also have with us this
16 evening Donna Gaffigan. She is the New
17 Jersey DEP Case Manager. She has been
18 handling the chemical contamination at
19 the site from the New Jersey DEP
20 perspective.

21 So, our purpose this evening is
22 outlined up here, as you can see. We're
23 here to discuss the cleanup options that
24 EPA considered when looking at the
25 contamination at the OU2 for the SMC

♀

6

1 site.

2 So, we've gone through the process
3 and we've identified what contamination
4 exists at the site, we've identified
5 what technologies, what engineering
6 controls, may be appropriate to address
7 that contamination and reduce the risk
8 at the site, and we've identified what
9 we believe is the most appropriate
10 cleanup action for the site itself.

11 We're going to talk to you about
12 what that is. It's in the proposed
13 plan, but we're going to walk you
14 through that information this evening.

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We will be accepting public

15
16 comments until Monday, July 28. The
17 proposed plan talks about ways that you
18 can communicate those comments or get
19 those comments to us: You can send them
20 via e-mail; any comments that you make
21 tonight will become part of the
22 transcript, and we will respond to them;
23 and we also have comment cards that
24 Wanda talked about as well.

25 If you have a comment and you feel

7

1 more comfortable writing it, you can
2 write it down, give it to us, and that
3 becomes part of our formal record as
4 well.

5 And we will respond to all public
6 comments we receive -- either comments
7 that are submitted this evening,
8 comments that come to Sherrel via e-mail
9 or that are sent in to us -- as part of
10 our Responsiveness Summary in our Record
11 of Decision that will be memorialized in
12 our final decision document. All of
13 those comments and our responses will
14 become part of the record.

15 So, our agenda this evening, we're
16 going to quickly walk you through the
17 overall Superfund process so you can
18 understand all the different steps that

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19 we've gone through to get where we are
20 this evening and all the steps that
21 await us once we get through this
22 evening's meeting.

23 we'll give you a little bit about
24 the site history; we'll talk to you
25 about the remedial investigation

♀

8

1 sampling, which defined the nature and
2 the extent of the contamination that
3 we've identified at the site; we'll walk
4 you through the assessment of risk first
5 to human health, as well as the
6 ecological assessment; we'll discuss the
7 remedial alternatives that we
8 considered; tell you why we believe that
9 our preferred alternative is the most
10 appropriate one for the site; and then
11 we will open it up to comments and
12 questions from you guys.

13 So, starting with a little bit of
14 the Superfund process overview,
15 Superfund is also known as CERCLA, which
16 is the Comprehensive Environmental
17 Response Compensation and Liability Act.
18 It was passed by Congress in 1980 in
19 response to a couple of environmental
20 disasters; Love Canal was one of them,
21 Valley of the Drums I think in Tennessee

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22 was another one. It was amended in
23 1986.

24 The passage of this law provided
25 federal funding to clean up some of

♀

9

1 these hazardous waste sites, it allows
2 EPA to respond to these type of
3 emergencies, and it allows EPA to
4 require potentially responsible parties
5 to pay for or conduct the necessary
6 actions to identify the extent of the
7 problem and to remediate that problem.

8 So, the Superfund remedial
9 process. It begins with site discovery;
10 someone lets EPA know that there's a
11 problem at a site, and we go out and
12 start to investigate it.

13 We do what's called a preliminary
14 assessment and a site inspection. We
15 collect some information to determine:
16 Do we think that there is a problem? Do
17 we think that there's a potential threat
18 to human health or the environment that
19 warrants a Superfund-type of response?

20 We take that information and we
21 run it through what we call a hazard
22 ranking system, which calculates a
23 numeric score based on the type of
24 contamination and the concentration of
25 contamination that we find. And if the

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10

1 score is high enough, it's placed on the
2 National Priorities List, or the NPL.
3 And Shieldalloy Metallurgical
4 Corporation is one of those sites.

5 Once a site is on the NPL, we then
6 conduct a remedial investigation, which,
7 again, as I said, the goal of which is
8 to identify the nature and the extent of
9 the contamination at the site, look at
10 the fish and transport of the
11 contamination, and assess the potential
12 for human health and ecological risks
13 from exposure to that contamination.

14 We also conduct a Feasibility
15 Study, which looks at different remedial
16 alternatives against different
17 engineering technologies, different
18 institutional controls that may be
19 appropriate to control or mitigate the
20 risks at the site.

21 We propose a remedy, and that's
22 where we are this evening. We're here
23 to discuss our proposed remedy.

24 At the end of our public comment
25 period, we will issue what's called a

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11

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Record of Decision. That memorializes
EPA's decision on what the remedy for
the site is, including responses to all
the comments we receive tonight.

We then move into the remedial
design or remedial action phase, where
we plan the specifics of how we're going
to implement that remedy and we conduct
that remedy.

Once that is all conducted, once
the site is cleaned up and all of the
remedial action objectives for the site
have been met, the site is then eligible
for deletion.

Once the site is deleted, that
doesn't mean we forget about it. One of
the things that can happen even after a
site is deleted is that we'd be able to
come back and evaluate the remedy to
make sure that it remains protective of
human health and the environment. This
is a site where our preferred remedy
does require that to happen.

And now Sherrel is going to give
you a little bit of history of the site.

12

MS. HENRY: Good evening, ladies
and gentlemen. My name is Sherrel --
like they said before, my name is
Sherrel Henry and I'm the Project
Page 10

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5 Manager for the Shieldalloy site.

6 The Shieldalloy site has been
7 around for a long time and there's a
8 wealth of interaction, there's a long
9 history of EPA, DEP, and NRC
10 interaction. There's tons of data that
11 has been collected at the site.

12 The site started in the early
13 1900s. Glass manufacturing was
14 conducted at the site. And then in
15 early 1950, SMC purchased -- that's
16 Shieldalloy Metallurgical Corporation --
17 purchased the site.

18 From 1955 to 2006, they utilized
19 the facility to process ores and
20 minerals to produce primary metals and
21 specialty metals and ferroalloys.

22 Raw materials that were utilized
23 in the processes contained various
24 metals, including chromium, copper,
25 titanium, iron, lead, and nickel.

♀

13

1 Now I'll give you a little
2 background. Michael talked about how
3 was the site discovered. And for this
4 particular site, in 1970, chromium
5 contamination was detected in a public
6 supply well and, also, a private well by
7 DEP. So, once that happened, DEC

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8 directed SMC to conduct an investigation
9 to find out, you know, where is this
10 contamination coming from.

11 So, they did an investigation at
12 the site, and the result of that
13 investigation is a pump-and-treat system
14 was put it in. As a result of that, the
15 site was placed on the National
16 Priorities List.

17 Let me back up for a minute. The
18 site, because it's such a complex site,
19 it's broken up into three parts. We
20 keep saying Operable Unit 2. There's
21 three units.

22 Operable Unit 1 is nonperchlorate
23 contamination in groundwater. That's
24 Operable Unit 1. That pump-and-treat
25 has been going on for a while.

♀

14

1 Operable Unit 2, which is what
2 we're here to discuss tonight, as Wanda
3 said, is nonperchlorate contamination in
4 soil, surface water, and sediment.

5 And Operable Unit 3 is the
6 investigation of perchlorate
7 contamination in all mediums, including
8 surface soil, sediments, and surface
9 water.

10 So, once the site was placed on
11 the National Priorities List, there is

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12 tons of investigation that was conducted
13 during the 1990s and various activities
14 were performed with DEP's oversight.

15 And then in 2010, EPA took
16 enforcement lead on the site. And once
17 that was done, EPA negotiated with the
18 Potentially Responsible Parties, and we
19 have an order in place that requires the
20 PRP, which is SMC and TRC, to perform a
21 remedial investigation and feasibility
22 study and to come up with a remedy which
23 we select. And, you know, that's what
24 we're here to talk about tonight.

25 when I talk about "the site," the

15

1 site includes the SMC facility located
2 at 35 Southwest Avenue and it also
3 includes another parcel, which is the
4 farm parcel, which is located at
5 Northwest Road. And the farm parcel was
6 bought by SMC just so that they could
7 implement the pump-and-treat system.

8 And another portion of the site is
9 the Hudson Branch. You really can't see
10 too well in here, but it runs along the
11 southwest corner of the facility and
12 goes to Hudson Pond, Burnt Mill Pond.

13 The two areas of interest for the
14 site is the facility and the Hudson

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15 Branch. I'm going to go into a little
16 more detail about exactly what's located
17 at the facility.

18 I know you probably can't see this
19 too clearly, but I have a larger map
20 over there if you want to look at it
21 later.

22 In general, most of the facility
23 is covered by buildings, asphalt, and
24 concrete cover. And this is a
25 production area, which is the largest

♀

16

1 area of the site -- former production
2 area. It's the largest area of the site
3 and most of it is covered with
4 buildings, like I said. And this is the
5 area where most of the manufacturing
6 processes were conducted.

7 The former lagoons, right here,
8 those were actually the root of
9 contamination to the groundwater. When
10 the manufacturing first started, they
11 had online lagoons and wastewater was
12 poured directly into them and it went
13 into groundwater.

14 But those lagoons have been
15 remediated by SMC with DEP's oversight.
16 So, it's clean. The waste that was
17 there was excavated and taken offsite
18 and replaced with clean fill.

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19 And the area that we're most
20 interested in is the eastern storage
21 area because in that area, there is no
22 cover. No work was done there like in
23 the lagoon, where there was actually
24 remediation. So, there's no cap. That
25 area is of interest to us.

+

17

1 There's also another area, the
2 southern area, located here.

3 And this is the restricted area,
4 which I'm sure you're all aware of, that
5 contains radioactive waste. It's
6 covered by a chain-link fence, with
7 barbed wire, and there's signs posted so
8 that people will know what it is.

9 And these green areas are the
10 natural restoration areas that -- it was
11 a part of a settlement agreement where
12 for habitat purposes, soil was placed in
13 there with cover so that, you know,
14 habitat would have someplace to be.

15 The Hudson Branch. This is a
16 better picture of the Hudson Branch.
17 Like I said, it runs along the south
18 edge of the facility and discharges to
19 Burnt Mill Pond down here.

20 An area to note on this site is
21 right here, a ponded area where water

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22 settles. And this is an area of
23 interest, during our investigation we
24 found this to be an area of interest.
25 And it's located near the corner of

♀

18

1 Northwest Avenue and Arbor Street.

2 Next, the actual investigation
3 that was performed. The purpose -- like
4 I said before, there was tons of study
5 that was done previously. There was an
6 RI that was performed in the 1990s. So,
7 here we are, doing another RI.

8 why are we doing this?

9 There were areas that were not
10 delineated. This is just basically --
11 our study is basically to fill the gap
12 that was left over from the other
13 investigation. And Operable Unit 2,
14 what we're here for tonight, is just
15 contaminations in soil, sediment, and
16 surface water.

17 And the RI data that we collected
18 identified sources of contamination,
19 contaminants that may be of potential
20 concern that we have to address, and
21 just the pathway that those
22 contamination, you know, migrates into
23 the environment.

24 And, also, the concentration of
25 contaminants at points of exposure to

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♀

19

1 human health and the environment. How
2 is it getting to humans and ecological
3 risks?

4 As part of the remedial
5 investigation, we investigated -- we
6 took samples all over the facility in
7 the various areas that I showed before,
8 and we also collected sediments and
9 surface water from some additional
10 areas; on-site impoundments, Hudson
11 Branch in certain locations -- the
12 Hudson branch is about two to three feet
13 wide in most locations -- and, also,
14 Burnt Mill Pond, which is owned by
15 Vineland and was drained in 2012 due to
16 a failure of the dam. We're not sure
17 when that's going to be reopened. When
18 Burnt Mill Pond is full, it's
19 approximately 2.5 feet deep.

20 And we also took -- we are
21 required to take background samples to
22 see if there's contamination that's
23 actually coming onto the property,
24 coming from upgradient onto the
25 property. So, what we used for surface

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20

SMC Public Meeeetint Transcript.txt
1 water and sediment was Burnt Mill Pond,
2 and it was studied for background
3 information.

4 Like I said, samples, there were
5 tons of samples that were collected.
6 And those samples were evaluated, and we
7 came up with two areas, two areas that
8 there was a problem. It was, you know,
9 high concentrations or it presented a
10 risk.

11 And these two areas were the
12 facility soil, the soils in -- it's on
13 the facility in the eastern storage
14 area. There's actually a -- I think I
15 have a picture in the next slide that
16 shows you exactly the shape of it and
17 what it looks like.

18 And, also, in the Hudson Branch,
19 we found sediment contamination that we
20 know has to be addressed.

21 Like I said, these are the two
22 areas of contamination that we
23 identified. And once you identify it,
24 it has to be addressed.

25 I have a figure here. This figure

21

1 will just give you an idea of what I was
2 talking about with all the samples. All
3 over, we took samples all over the
4 property.

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5 And this area right here in red,
6 the area in red, this is the area of
7 concern. It's about 1.3 acres and it's
8 in the eastern storage area of the
9 facility.

10 Like I said, you can see there are
11 tons of samples that have been
12 collected.

13 You probably really can't see
14 this, but what you should concentrate on
15 is the areas in red. These areas over
16 here are where we found a problem, and
17 it has to be remediated. Like I said, I
18 know you really can't see it, but if you
19 look at the red areas, those are areas
20 that we found of concern.

21 And, you know, once a remedial
22 investigation is completed and we
23 identify areas and chemicals of concern,
24 we then have to do what Michael was
25 talking about before: we then have to

♀

22

1 do the risk assessment to see if there's
2 a problem to human health and, also, to
3 the ecology, ecological receptors.

4 And Michael will now give you a
5 brief discussion of how we go about
6 figuring out what the risk is based on
7 the chemicals that we found.

SMC Public Meeeetint Transcript.txt
MR. SIVAK: Thank you.

8
9 So, once we've identified the
10 nature and extent of contamination in
11 the onsite facility soils and in the
12 Hudson Branch, that allows us to go to
13 human health and ecological risk
14 assessment.

15 what we're trying to do is we're
16 trying to figure out what are the risks
17 if there is contact, if there is
18 exposure to this contamination now, the
19 way the site currently exists, or in the
20 future if no action is taken? How might
21 the facility change? How might
22 populations change in the future? And
23 what would be the risk if no action is
24 taken both from the human side and from
25 the ecological side as well?

23

1 The human health risk assessment
2 has four steps to it.
3 The first is hazard
4 identification. Yes, we identified lots
5 of different chemicals across the
6 facility and in the sediments, but not
7 all of those chemicals are of particular
8 concern to us. Some of them are
9 detected very infrequently. Some are
10 detected at very low levels, below
11 levels of any kind of toxicological

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12 concern for us.

13 So, this hazard identification
14 step allows us to concentrate on those
15 chemicals that are most significant as
16 far as the potential to be associated
17 with adverse health effects.

18 Then we look at the exposure
19 assessment, which is how might people be
20 exposed now? How might they be exposed
21 in the future?

22 we ask questions like: What is
23 the reasonably anticipated land use in
24 the future? How is the land being used
25 now?

24

1 For the surface water and
2 sediments, we look at how frequently
3 might people access those sediments or
4 how frequently might people access that
5 surface water?

6 The toxicity assessment looks at
7 databases of published literature
8 regarding the health effects associated
9 with exposure to these types of
10 chemicals and what levels you need to be
11 exposed to before we start to see
12 evidence of some of these adverse health
13 effects.

14 And then we summarize all of this

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information in a risk characterization.

15
16 we look at what chemicals are out there,
17 how people are exposed to them, and what
18 levels are associated with adverse
19 consequences in order to characterize
20 what the risks might be.

21 And if those risks are above what
22 Congress has identified for our program
23 as acceptable levels of risk, then
24 action needs to be taken to reduce those
25 risks. If you exceed these acceptable

♀

25

1 levels of risk, then we're required to
2 reduce those levels of risk by
3 remediation, by introducing some type of
4 a control to reduce exposure.

5 The ecological risk assessment
6 follows a similar type of process.
7 Again, we look at what kind of
8 contaminants we have seen out there, we
9 look at what type of ecological
10 receptors would be present.

11 Ecological receptors have very
12 different sensitivities than human
13 receptors to certain chemicals. You
14 will notice as we go through this that
15 there are some chemicals that are
16 associated with ecological risk but we
17 don't have any human health risk from
18 them and that's because some of these

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19 ecological receptors, certainly in the
20 benthic community in the sediments, some
21 of these ecological organisms are very
22 sensitive to metals, for example --
23 that's what you'll see at the conclusion
24 of this -- and we see adverse health
25 effects in those communities at much

♀

26

1 lower levels than we will see in humans.
2 So, in the human health risk
3 assessment, our goal is to protect the
4 reasonable maximum exposed individual.
5 We look at what is the most exposure we
6 can reasonably anticipate somebody to
7 have at a site.

8 For example, we know that the site
9 is currently a commercial/industrial
10 facility. And we looked at all the
11 pieces of information that were
12 available to us regarding what the
13 likely and reasonable anticipated land
14 use for the facility would be.

15 And when we looked at things like
16 zoning, historical land use, town master
17 plan, things like that, that led us to
18 believe that the most reasonable
19 anticipated future use of the site is
20 commercial/industrial.

21 So, we then were looking at: what

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22 is the reasonable maximum exposure for a
23 commercial or industrial worker at a
24 facility like that?
25 we know, for example, that that

♀

27

1 type of worker who is exposed to
2 contamination 250 days a year -- which
3 comes out to be 50 weeks a year -- for
4 five days a week for a period of about
5 25 years, that was our typical,
6 standard, commercial/industrial
7 scenario, and that's how we're assuming
8 that people are exposed. We believe
9 that to be the reasonable maximum
10 exposure that we would expect at the
11 site.

12 we also look at exposure in the
13 absence of certain institutional
14 controls. So, for example, if there is
15 a cap on a property or there is a fence
16 restricting exposure, we don't consider
17 that because there's no reason to
18 believe that fence will exist in the
19 future. So, we would assume that people
20 would have exposure to the areas, that
21 we looked at that without those type of
22 controls.

23 So, the conclusions of the human
24 health risk assessment. When we looked
25 at the facility, as Sherrel mentioned,

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1 we found our highest contamination in
2 that red area of the eastern storage
3 area, which is here.

4 Is that right, Sherrel?

5 MS. HENRY: Yes.

6 MR. SIVAK: Thank you. I don't
7 have my glasses on, so I have a hard
8 time looking that far.

9 So, we found our highest
10 concentrations of contamination in that
11 area.

12 when we looked at the different
13 exposures and the different populations,
14 we looked at onsite workers exposed to
15 soil, we looked at recreational
16 trespassers exposed to soils, and we
17 looked at current and future
18 construction and utility workers that
19 actually have to go down into the soil
20 if they're doing construction work, if
21 they're doing utility repairs, things
22 like. They would be exposed to
23 contamination at depth, and they would
24 be the only folks that would likely have
25 that type of an exposure.

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1 We also looked at a future
2 residence scenario. I said that wasn't
3 our likely anticipated future land use,
4 but we included this as well in our
5 scenario just because we wanted to see
6 if there were any unacceptable risks to
7 residents in the area that might limit
8 any type of future development or any
9 type of future exposure.

10 In the Hudson Branch and Burnt
11 Mill Pond, we looked at current
12 recreational trespassers. We focussed
13 on the adolescents, which is a more
14 sensitive population than the adults.
15 That was the population we chose to
16 focus on as well with exposure to
17 surface water and sediment.

18 We get our toxicity information
19 from databases that are -- they include
20 laboratory studies, they include
21 epidemiological occupational studies
22 that have been peer reviewed in
23 scientific literature. And this
24 information is used all over the world.
25 EPA databases are considered one of the

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1 world's most rigorous sources of this
2 type of information, and that's where we
3 get our information from.

4 We also look at two types of
Page 26

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5 health effects. We look at those type
6 of chemicals that have been known to be
7 associated with cancer and then we look
8 at all other types of health effects;
9 things like central nervous system
10 effects or GI effects, things like that.
11 So, we look at these two different types
12 of health effects.

13 The conclusions of the risk
14 assessment once we went through that
15 very health-protective process and once
16 we looked at all of that information,
17 what we concluded was that the
18 unacceptable human health risk for the
19 facility workers was limited to future
20 construction and utility workers.

21 And the only thing that really
22 exceeded our acceptable levels was
23 inhalation of fugitive dust in this area
24 from exposure to vanadium in the soil.

25 So, that means that as these

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1 workers are digging in the soil and they
2 are generating dust -- and that includes
3 contamination of the surface and the
4 subsurface -- that are generating this
5 dust and they're breathing that in, in
6 an everyday sort of worker kind of
7 scenario, we have a slight unacceptable

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8 risk; the acceptable level is one, and
9 we're at level two.

10 We looked, as I said earlier, at
11 health effects that are associated with
12 the risk of cancer. And all of the
13 cancer risks that we evaluated were
14 within our acceptable risk ranges. So,
15 we found no unacceptable potential for
16 incidence of cancer based on exposure to
17 facility soils.

18 We did find this one slight
19 exceedance of a noncancer health effect.
20 This is for vanadium.

21 Then when we looked at Hudson
22 Branch, all of our health risks, both
23 cancer and noncancer, are within
24 acceptable levels. So, there's no
25 danger for any unacceptable human health

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1 risk in the Hudson Branch.

2 Now, on to the eco. Again, I'll
3 kind of talk you through the eco process
4 as well.

5 what we found in the facility's
6 soils, again in the eastern source area,
7 vanadium again posed a problem to the
8 ecological community. And you also have
9 the chromium that showed an elevated
10 unacceptable hazard for ecological
11 receptors in the eastern source area

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soil.

In the Hudson Branch -- and this is probably the biggest difference between the human health and the ecological risk assessment -- we found that we had unacceptable ecological risk in sediment from chromium, vanadium, copper, lead, and nickel. And that was basically in that area Sherrel identified, that ponded area along the Hudson Branch.

We collected samples all along the Hudson Branch. It was really in that area, it was in the ponded -- I

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apologize.

We did see some problems all throughout the branch, but, again, in the ponded area, which is kind of where some of the stuff deposits, that's where we found some of our highest levels.

And, again, you can see along here -- this is not the best plan ever -- you can see from the Burnt Mill Pond along here, and some of these different colors reflect the different unacceptable risks or different levels of chemicals seen throughout.

So, in summary, the chemicals of

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15 potential concern, and these are the
16 chemicals associated with unacceptable
17 health risk at the site: On the
18 facility soils in the eastern storage
19 area, we have vanadium for both human
20 health and ecological risks, and then we
21 had chromium for unacceptable ecological
22 risk; in the Hudson Branch, we had
23 chromium, copper, lead, nickel,
24 vanadium, and these were all limited to
25 unacceptable ecological risks.

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1 These are the chemicals that we're
2 going to consider when we move into the
3 feasibility study stage. We're going to
4 look into what type of technology and
5 what types of treatments are available
6 to address these chemicals in soils and
7 in sediments.

8 MS. HENRY: Once the risk
9 assessment is completed, we have to come
10 up with objectives: How are we going to
11 address the areas where risk was
12 identified?

13 So, what we do is we come up with
14 what we call remedial action objectives.
15 And for this site, because of where the
16 risk was found, the first is to prevent
17 human exposure to contaminated surface
18 soil in the eastern storage area of the

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19 facility that pose an unacceptable risk;
20 a noncancer hazard.

21 We also prevent exposure to
22 ecological receptors that Michael was
23 talking about, the different receptors,
24 to contaminated surface soil in the
25 eastern storage area of the facility

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1 that pose unacceptable risks.

2 Those first two were associated
3 with the facility soil.

4 And the third objective was to
5 prevent exposure of ecological receptors
6 to contaminated sediments in the Hudson
7 Branch. Anything that poses an
8 unacceptable risk, we have to take care
9 of it, we can't just leave it. We have
10 to prevent exposure of ecological
11 receptors when risk is presented.

12 Once your objective on the risk
13 assessment is completed, we have to come
14 up with cleanup numbers that we think
15 will be protective to human health and
16 ecological receptors.

17 So, the facility in the eastern
18 storage area, the contaminants of
19 concern, total chromium, we have a
20 number of 44; and hexavalent chromium,
21 20; and vanadium, 54. And those are

SMC Public Meeeetint Transcript.txt
22 chemicals of concern as far as the
23 facility area.

24 On the Hudson Branch, as Michael
25 said, there's only ecological risks.

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1 Chemicals, also total chromium,
2 vanadium, copper, lead, and nickel, and
3 you see the various numbers. Total
4 chromium is 1,275; vanadium -- if you
5 notice, the numbers are different
6 because on the facility, we're talking
7 about -- it's not ecological. It's
8 we're talking about ecological
9 receptors, and on-site there's a more
10 human exposure element.

11 Once we have a cleanup objective,
12 we then look at different alternatives
13 that will address -- that will address
14 these goals.

15 We came up with four alternatives
16 for the site. The first one is the no
17 action alternative, and that's a
18 requirement by Superfund that all -- you
19 have to look at no action as a baseline
20 to consider for comparison with other
21 alternatives. And there's no cost
22 associated with that because you
23 evaluate it as if you're going to do
24 nothing; you're not going to maintain
25 anything that's onsite, you'll do

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1 nothing that costs money.
2 Alternative 2 is institutional
3 control and monitoring. Institutional
4 controls are deed notices, restrictive
5 covenants, and, also, local ordinance
6 that would prevent -- you know, you put
7 deed notice in place, that would prevent
8 someone that's on the facility, they
9 wouldn't be able to -- residents would
10 not be able to live on that. That's
11 what deed notice prevent, certain
12 actions from taking place.
13 Alternative 3 would be capping
14 facility soils. That's the eastern
15 storage area. It's approximately 1.3
16 acres. You would cap that, and
17 institutional controls would be placed
18 to ensure that there could be no
19 residential -- it couldn't be
20 residential, it has to stay industrial.
21 And all the previous remediation that
22 happened at the site, these
23 institutional controls will ensure that
24 they're maintained properly. And the
25 cost of that portion is \$640,000 --

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excuse me, Alternative 3, \$5 million.

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Alternative 4 would be excavating.
For Hudson Branch, the remedy would remain the same; the only difference on the facility, you would be excavating instead of capping. But the remedy for the sediments, like I said, will remain the same, and that costs approximately \$11 million.

MR. SIENCZENKO: Excuse me, I'm sorry.

You were showing before on number one and number two, the pictures before, what contaminants you have on the site. And all the contaminants going down the stream are ten, twenty times more than what's behind the pile of crap.

All right?

So, what I'm saying is if you go to Alternative 4, you have -- coming down the hill --

MS. AYALA: Sir, I'm sorry.

Can you just keep it to the end?

Let us do the presentation, and then people will be called in order to

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comment because it's too disruptive and the stenographer won't be able to transcribe it properly.

MR. SIENCZENKO: That's fine.

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5 MS. HENRY: Once we come up with
6 alternatives that we think can address
7 the risk that was identified, we then
8 evaluate it against EPA criteria, nine
9 criteria. Basically, the nine criteria,
10 we have them so that you can address --
11 the CERCLA requirements to address any
12 additional technical and policy
13 consideration that may prove important
14 for selecting among the various
15 alternatives.

16 And, like I said, there's nine
17 criteria. The first two criteria are
18 what we consider threshold criteria.
19 And, basically, in order for you to
20 consider a remedy, it must meet these
21 two criteria.

22 It must be protective of human
23 health and the environment. And if it's
24 not, if you see that an entity will not
25 protect human health and environment, we

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1 can't include it.

2 And the second one is compliance
3 with applicable and relevant and
4 appropriate requirements. This is state
5 guidance, EPA, you know, all the federal
6 and state goals that are in place. We
7 have to make sure that any remedy that

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8 we look at is in compliance with state
9 and federal guidelines.

10 The next five alternatives are
11 what we call the balancing criteria.

12 The first one is long-term
13 effectiveness and permanence. And,
14 basically, the long-term effectiveness
15 and permanence look at the risk, how
16 will the risk be managed, and to make
17 sure that the risk has for a long
18 time -- you know, assess the risk.

19 And the adequacy and reliability
20 of the control.

21 Reduction in toxicity, mobility,
22 or volume through treatment. You prefer
23 treatment technologies and, you know,
24 you want to reduce the volume through
25 treatments.

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1 And short-term effectiveness is in
2 the short term, what risk would be
3 presented to the community or to, like
4 when Michael was talking, he was talking
5 about utility workers. Short-term
6 effects, how does that remedy address
7 the short-term exposures?

8 And implementability. This is how
9 easily or readily can the remedy be
10 implemented?

11 The final, seven, is cost.

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12 Basically, what you're doing is
13 comparing each individual alternative
14 against all nine criteria, and once
15 you're done with that, you compare each
16 of them using the nine criteria.

17 The final two criteria are the
18 modifying criteria. These are evaluated
19 after the comment period closes.

20 State acceptance. During the
21 comment period, DEP will send their
22 comments.

23 And for community acceptance,
24 community acceptance won't be evaluated
25 until after all comments are received

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1 and the comment period closes. And any
2 comments that we get, we will include,
3 as Michael said, in the responsiveness
4 summary of the ROD.

5 So, we went through this process
6 for the four alternatives that I showed
7 you before. Alternative 1, we put no
8 action; 2, institutional controls --

9 And what we did, using the nine
10 criteria, we compare them individually
11 to see if they meet the nine criteria
12 and then we compare them together. It's
13 a balancing we do to see whichever one
14 we think based on all the criteria would

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15 be more effective to cleaning up the
16 site. And then we come up with a
17 preferred alternative.

18 And after going through the
19 process of the nine criteria, what we
20 came up with was Alternative 3. And
21 basically, it would be capping facility
22 soils, the 1.3-acre facility soils in
23 this area, and then maintaining the
24 existing covers that's on the site.

25 The site is largely covered with

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1 asphalt, concrete, and there's saw caps
2 on the site. So, we'll make sure that
3 those are maintained. That's for, like
4 I said, capping facility soils.

5 For the sediments in the Hudson
6 Branch, we'd excavate the sediment,
7 those that are above the PRGs. We'd
8 excavate those and then we would replace
9 it with clean fill.

10 The institutional controls that I
11 talked about, those could be easements
12 or restrictive covenants, restricting
13 what can or cannot be done at the site.

14 And, also, the cap that we're
15 putting in place, we've got to make sure
16 that it stays in place. So,
17 institutional controls help us to make
18 sure that that happens because if you

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19 select the remedy, you want to make sure
20 that it's maintained.

21 Let me back up. Contamination
22 above state guidelines was detected in
23 Hudson Branch; however, when we did the
24 risk assessment, we found that it didn't
25 present unacceptable risk.

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1 So, what we're going to do in the
2 area of the Hudson Branch surface water,
3 we're going to monitor it to ensure that
4 it eventually meets state standard. And
5 we think this will happen because all
6 the areas where we found the surface
7 water contamination, it was where the
8 sediments -- where the highest levels of
9 the sediment were found. So, we feel
10 that once we take that up, the levels --
11 you know, we think that's the source
12 that's causing the surface water to be
13 high, to be above state guidelines. So,
14 what we would do, like I said, we would
15 monitor that.

16 And the area on the Hudson Branch
17 that I showed you, there was a ponded
18 area that was down near Arbor Street.
19 What we're going to do with that area,
20 we're going to assess to see if
21 additional things need to be done. And

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22 because we're leaving waste in place,
23 we're required to visit it, to make
24 sure -- we're selecting a remedy and we
25 want to make sure the intent of the

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1 remedy is maintained. So, what we do
2 every five years is we go back to the
3 site, look at everything that we did,
4 check and monitor results to make sure
5 that levels are going down, we make sure
6 that the cap is -- there's no cracks to
7 the cap, and, you know, just to make
8 sure that the intent of the remedy is
9 being maintained.

10 And that's a requirement of
11 CERCLA. We have to do that. So, even
12 after a site -- if a site gets off the
13 list, National Priorities List, we still
14 have to make sure that the remedy is
15 doing what the intent and purpose would
16 be, and we would do that every five
17 years.

18 And that's the conclusion of my
19 presentation.

20 So, what happens next?

21 Once the comment period closes, we
22 would -- a Record of Decision is written
23 by EPA documenting the decision, the
24 preferred decision. And any comments
25 that we receive will be put in the

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1 responsiveness summary, which is an
2 attachment and a part of the ROD.

3 And what happens, once a remedy is
4 selected, we would try to get the
5 potential responsible parties to pay for
6 the remedy. So, what we would do, we'd
7 negotiate with them and a consent decree
8 would be signed, which is enforceable,
9 and the PRPs would implement the remedy.
10 Ideally, that's what we would want to
11 happen.

12 But if we don't negotiate with
13 PRPs and they don't sign, we would have
14 to use fund money, which, as most of you
15 know, there's not a lot of that.

16 Once the consent decree is signed,
17 we -- this is to do a design of the
18 remedy that was selected, remedial
19 design, and then the remedial action.
20 That's the actual construction of the
21 remedy. That takes place after the
22 consent decree is signed. We have to
23 design the remedy -- this is all with
24 EPA oversight, we have to approve
25 everything -- and then there's

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implementation of the remedy.

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And, normally, after the Record of Decision is signed -- you know, it takes probably on average probably two, two to three months, to finish negotiations with the PRPs. And as far as remedial RDRA, that's probably another six to seven months.

UNKNOWN SPEAKER: So, within a year it will be done?

MS. HENRY: well, we have to follow the process because we need to have an enforcement document in place so if the PRPs -- so we can hold them to it, so that they will do exactly what the remedy says they have to do, exactly what it says. So, we have to negotiate.

Like we said, in the proposed plan it said that the comment period ended on that Saturday, but, normally, what we do if it ends on Saturday, we make the Monday. Even though that Saturday is thirty days, we make Monday the end of the comment period. So, there's a difference in the proposed plan than

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what you see here tonight.

But the comment period ends July 28, and you can send all your comments to me via -- you can mail it or
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e-mail.

MS. AYALA: We'll now open up the floor to comments and questions, and we're going to do it in numerical order, starting with No. 1. If No. 2 and No. 3 could stand by so you can come up to mic right afterwards, I would appreciate that.

When giving a comment or asking a question, please state your name so the stenographer can transcribe it.

MS. WILLIAMS: My name is Loretta Williams, 310 Oakwood Drive, Newfield.

I thought there was another alternative, Alternative 4?

MR. SIVAK: We did show Alternative 4, yes.

would you like us to go back to that.

MS. WILLIAMS: Yes. That's important.

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I read this before. I got this from the library. I'm opposed to Alternative 3 because it excavates and then caps.

That's been done all these years when they capped the lagoons and capped other areas of that site, and it didn't

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8 do any good because those metals and
9 chemicals are still so extremely high.
10 And it was over thirty years.

11 Alternative 4 actually says to
12 excavate and then to be sent offsite to
13 a licensed hazardous waste facility.

14 That needs to be done because this
15 town should not be a waste site for
16 radioactive or chemical waste. This
17 facility is not licensed for that, and
18 this town is -- and I don't like on any
19 of them, even Alternative 4, that they
20 have institutional controls, where they
21 have deed restrictions for residential
22 and commercial use.

23 This town will never be able -- if
24 that stuff stays here, this town will
25 never be able to develop that land, that

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1 67.7 acres of property. This town is
2 1.7 acres (sic) and this is a big chunk
3 of our real estate that we can't do
4 anything with.

5 This site should be cleaned up
6 properly because nobody here is going to
7 buy the stuff. We had it out with the
8 NRC back in 2006, and they decided to
9 turn it over to the State of New Jersey.
10 They didn't want to deal with us.

11 I mean, we're no fools here and
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12 we've lived with this for a long time.
13 People have gotten sick and God knows
14 how many children actually died from
15 illnesses they got from this site.

16 This company just doesn't want to
17 take responsibility for their mess.
18 They want to leave and leave it here for
19 somebody else, and it's not right. I'm
20 very much opposed to this.

21 And I also believe that before
22 anything is done, there should be a
23 groundwater study of this site by the
24 U.S. Geological Survey. We have two
25 wells in this town polluted with radium.

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1 Both of our wells. They had to put in
2 over a million dollar system to clean
3 this up.

4 The town can't afford this. The
5 taxpayers are already overburdened with
6 school costs and the fact that the state
7 is cutting back aid to municipalities.
8 We're overtaxed and we can't take it.
9 Eventually, if it doesn't stop, we're
10 going to have to go back to Franklin
11 Township, where we were originally,
12 because these small towns just can't do
13 it.

14 That's my comment.

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(Applause)

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MR. SIVAK: Again, before we go any further, I just want to again state that the purpose of tonight's meeting is not to discuss the NRC, it's not to discuss the slag pile, it's not to discuss the radioactive material.

It's to discuss the chemical contamination and the onsite facility soils and the Hudson Branch. So, that's where we need to stay focused on this

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evening.

We understand that there are a lot of concerns and issues about that, but tonight's meeting is about the alternatives for OU2, which is the chemical contamination in the facility soils and in the surface water and sediments of the Hudson Branch.

So, if you could all please try to stay focused on that, that would be very helpful to us.

Thank you.

MR. SCANCELLA: My name is Frank Scancellla, 103 Northeast Boulevard. I've been here since '88, and so has that pile. I think a couple of things:

That if you were to tear down your house and leave it there, you would be

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19 fined. You wouldn't be able to leave it
20 there.

21 You don't want to discuss the slag
22 pile, but where is the source of this
23 chromium and vanadium coming from if not
24 there?

25 I'm not going to discuss that.

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1 How much land will be left for
2 commercial -- actually, it won't be
3 commercial, it will be industrial use.

4 MR. SIVAK: It would be commercial
5 or industrial.

6 MR. SCANCELLA: If we could have a
7 restaurant on the site, that would be
8 acceptable, if you can find somebody
9 who's going to build a restaurant on
10 that site. It's just industrial, is
11 what it's going to be.

12 So, we're losing revenue. It's
13 harder to get an industry to move on a
14 backstreet than it is on the highway.

15 I don't see anything positive
16 about leaving the pile there because we
17 lose that amount of land and we'll never
18 be able to develop it.

19 And what is the benefit to the
20 borough to have that capped?

21 Are we getting a yearly fee?

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22 Is somebody going to pay us for
23 having a dumpsite on our property?
24 Or do we just have to put up with
25 it and go from there?

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1 MR. SIVAK: When EPA selects a
2 remedy, we look at -- and I said this a
3 little bit earlier, but we look at what
4 is the reasonably anticipated future
5 land use of the site?

6 We look at many pieces of
7 information that are available to us as
8 we're trying to figure out what that
9 reasonably anticipated future land use
10 may be.

11 Some of EPA's guidance
12 documents -- and we use this process at
13 all of our sites around the country --
14 allow us to look at things like
15 historical land use, surrounding land
16 use, current zoning, town master plans,
17 things like that. There are things like
18 that that help us to try to figure out
19 what is the reasonably anticipated
20 future land use of the site.

21 We can't require everybody clean
22 up everything to residential standards.
23 Our law does not allow us to do that.
24 Our law requires us to look at what is
25 the reasonably anticipated future land

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1 use and develop cleanup levels for
2 contamination that is protective of
3 human health based on reasonably
4 anticipated future land use.

5 So, when we looked at all the
6 information available to us for this
7 site in the Town of Newfield and looking
8 at all those things that I mentioned, we
9 believe or we concluded that the
10 reasonably anticipated future land use
11 would remain commercial or industrial;
12 would remain industrial or possibly be
13 commercial.

14 Our cleanup plan, the cleanup
15 numbers that we identified earlier, the
16 levels of vanadium and chromium that are
17 in the onsite facility soils, are
18 protective of public health and the
19 environment under commercial and
20 industrial development scenarios.

21 The remedies that we have looked
22 at here, including our preferred remedy
23 of Alternative 3, allows -- is
24 protective for that future land use and
25 allows for commercial and industrial

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1 land use to be -- to take place in the
2 future.

3 MR. SCANCELLA: So, would you say
4 that half of the property would be
5 usable when it's done?

6 MR. SIVAK: I think that any area
7 that doesn't -- the entire property that
8 we looked at, all the soils that we
9 looked at, all the data that we
10 evaluated in the figures that Sherrel
11 showed earlier show where we collected
12 data. All of those results, all of the
13 data, suggests that the land is
14 appropriate for redevelopment of
15 commercial or industrial except for that
16 one little red square area where we're
17 going to take an action. Once we take
18 the action in that area, all of the
19 soils are appropriate for commercial or
20 industrial redevelopment.

21 How that happens, EPA is not
22 involved in what the development would
23 be. That's up to the property owner,
24 that's up to other folks. That is not
25 up to EPA to determine what moves in

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1 once we get the site cleaned up.

2 Our goal, our mission, is to
3 deliver a property that is appropriate
4 for a specific type of redevelopment

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5 based on what we believe is the most
6 reasonably anticipated future land use
7 for that site.

8 MR. SCANCELLA: Let me change my
9 question.

10 How much land will be used for the
11 capping?

12 MS. HENRY: 1.3 acres, that red
13 area.

14 MR. SCANCELLA: That little square
15 area right there?

16 MS. HENRY: Yes.

17 That's the only area we found that
18 presented a problem, just this area.

19 MR. SCANCELLA: So, you're going
20 to shrink that down to 1.3 acres.

21 MS. HENRY: No, no.

22 The actual area that presented a
23 risk, that has contaminants of concern,
24 is the 1.3 acres in the eastern storage
25 area.

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1 MR. SCANCELLA: That's fine.

2 MS. PALADINO: Good evening. My
3 name is Linda Paladino. I reside at 205
4 Fawn Drive in Newfield.

5 And although I have absolutely no
6 expertise in environmental engineering,
7 I believe my questions are somewhat

8 SMC Public Meetint Transcript.txt
generic but related to the information
9 presented tonight.

10 what was our ranking on the
11 priority list in the NPL?

12 You said once we were identified
13 as a Superfund site, we received a
14 ranking.

15 MR. SIVAK: The score, the
16 numerical score that comes out of the
17 model requires that -- it's a number.
18 Any number above 28.5 is eligible for
19 listing on the NPL.

20 I don't know what the number was
21 for this. I know it's above 28.5.

22 It doesn't matter at that point if
23 it's 28.6 or if it's 100. Once it's
24 above 28.5, it's eligible for the NPL.

25 So, I don't know the answer to

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1 that.

2 MS. PALADINO: Remediation was not
3 based on our ranking as far as priority
4 on that list?

5 MR. SIVAK: No.

6 All sites that are on the NPL are
7 dealt with the same way.

8 MS. PALADINO: And you said at one
9 point -- I'm assuming after
10 remediation -- it could be deleted from
11 the program itself.

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Is that correct?

MS. HENRY: That's the way the process -- all sites, we have to look at that. That's part of the process. That's the goal. You would love to get it deleted. It happens at some sites.

MS. PALADINO: Although you said with Alternative 3 we would be monitored for a period in five-year increments?

MS. HENRY: Yes.

MR. SIVAK: Once these remedial action objectives have been met, we're going to implement a remedy. We're going to implement a remedial action to

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address those unacceptable risks that we identified. Our goal once we implement that remedy is to prevent human exposure to contaminated surface soils in the eastern source area, prevent exposure to ecological receptors to contaminated surface soil in the eastern area that pose unacceptable ecological risks, and to prevent exposure to ecological receptors to sediments in the Hudson Branch.

So, once we meet these objectives, once we have -- if our preferred remedy is what ultimately is the final remedy

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15 for the site -- let's just go with that
16 for the purposes of our conversation --
17 once we cap these soils, once we
18 excavate these sediments, and once we --
19 sorry, once we cap these soils, and cap
20 these soils and excavate these
21 sediments, and we meet our surface water
22 criteria, these objectives will be met,
23 and, therefore, the site is eligible for
24 deletion.

25 Because we are still leaving

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1 contamination behind that requires these
2 caps to be maintained. We have a
3 requirement under our law to continue to
4 monitor the remedy to ensure that it
5 remains -- that its performance and its
6 protectiveness remain.

7 We formalize that. We review that
8 constantly. Every year, there will be
9 some sort of monitoring plan for that
10 cap or for those sediments --

11 MS. PALADINO: Does that include
12 testing when you say "monitoring"?

13 MR. SIVAK: It may be testing.

14 We're going to work that out when
15 we get to the remedial design phase. It
16 may be testing, it may be a visual
17 inspection of the cap.

18 Capping metals is not an uncommon
Page 54

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19 remedy based on Region 2 and based on
20 national sites. So, that's a very
21 typical kind of remedy that we have.
22 Sometimes a cap can be evaluated just
23 through a visual inspection.

24 We memorialize that performance
25 and the protectiveness of the remedy

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1 every five years in a document called a
2 five-year review, but we are constantly
3 monitoring the performance and the
4 protectiveness of that remedy regularly,
5 not just every five years. We just
6 memorialize it in a document every five
7 year, but we're doing it all the time.

8 Does that make sense?

9 MS. PALADINO: It does.

10 But wouldn't the contamination
11 continue under the cap into the ground
12 soil itself or into the groundwater
13 under the cap?

14 Does that -- the cap, when you say
15 "cap," it reminds me of since these
16 elements are proven to be -- could be a
17 cancer risk for humans, it makes me
18 think of an analogy of going to the
19 doctor and saying, "Yeah, you've got
20 some skin cancer there. We'll put a
21 Band-Aid and come back and I'll look at

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it once every five years."

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So, wouldn't the cancer in the
case of my analogy continue to -- does
the contamination continue under the

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cap?

MS. HENRY: Like I mentioned
before, Operable Unit 1 is looking at
the groundwater, looking to see what's
in the groundwater. And, you know,
eventually -- right now, there's a
pump-and-treat system in place, and
we're looking at that right now. And
that may or may not be a new ROD
amendment to change that, but there's a
lot of stuff going on in Operable Unit
1, and you'll be informed of that.

Like I said, this is for Operable
Unit 2, but there is a study of the
groundwater.

MS. PALADINO: What is the history
of that, though?

Does contamination continue under
the cap?

I guess that's my question.

MR. SIVAK: There's a couple of
parts to the answer to your question,
and I'll build on what Sherrel said.

We've already evaluated the
groundwater. We know what's in the

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1 groundwater.

2 The remedy in our ROD for
3 groundwater, our Record of Decision for
4 groundwater, hasn't proven to be
5 particularly effective, so we're looking
6 right now at pilot studies to make it
7 more effective. But we know what's in
8 the groundwater. We characterized that.

9 MS. PALADINO: If I could stop you
10 for a second.

11 If you're going to monitor this
12 and you come back, the cap's in place,
13 you come back, in a year you decide to
14 do another groundwater sampling because
15 you want to make sure it's not
16 continuing to increase, and you find
17 that, in fact, the cap on it is not
18 doing what you hoped it would do, would
19 you revisit the plan for that --

20 MR. SIVAK: Yes.

21 MS. PALADINO: Or once you say
22 it's number three, it's number three no
23 matter what?

24 MR. SIVAK: No, no.

25 If we find out at some point in

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1 the future that whatever remedy we
2 ultimately select and implement at the
3 site is no longer performing as expected
4 or is not protective of human health or
5 environment, we will go back and we will
6 revisit that.

7 MS. PALADINO: Okay.

8 MR. SIVAK: To go back to what
9 your question was earlier, we
10 characterized the groundwater pretty
11 well at this site. We've been
12 monitoring it for twentysome, thirtysome
13 years.

14 And, first of all, we don't find
15 vanadium in the groundwater. Vanadium
16 was one of our chemicals of concern in
17 the soil, but we're not finding that in
18 the groundwater.

19 And the unacceptable risk from
20 exposure to vanadium in soils at the
21 facility is associated with inhalation
22 of dust. So, the form of vanadium that
23 we have out there and the type of
24 vanadium that we have out there isn't
25 migrating. It's staying in the soil.

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1 And then when it gets mobilized in the
2 air, people are breathing in those
3 little dust particles, and that's what's
4 causing our unacceptable noncancer

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health risk.

MS. PALADINO: Right.

And what about the chromium?

MR. SIVAK: We are seeing chromium in the groundwater. The lagoons that were remediated under the state program addressed a lot of those issues. The chromium levels that we're seeing out there now, we don't really believe those are a source to groundwater anymore. We believe the levels of chromium that remain in the soils out there are low enough that they're not really leaching to groundwater at all.

We believe that, again, the only risk from chromium in the soils is to ecological receptors. So, we believe that putting a cap on these soils prevents that exposure from happening and, therefore, allows us to meet this remedial action objective of reducing

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the exposure, and, therefore, reducing the risk.

MS. PALADINO: Okay.

And you said once you get the plan in place, you're negotiating to get the owners of the site to help pay for the remediation.

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8 MS. HENRY: Responsible parties.

9 MS. PALADINO: Now, when I think
10 of negotiating, I'm thinking, "Take a
11 walk. I'm not interested. Do whatever
12 you got to do to me."

13 So, if they say that, we all know,
14 as you, yourself, commented, that since
15 we have thirty years of data but no
16 remediation that did the job, so to
17 speak, the Superfund money is dwindling
18 down to zero, and, to my knowledge,
19 Congress is not jumping up and down
20 holding midnight sessions to reimburse
21 the money.

22 So, if that should happen, you
23 negotiate and they say, "Do what you got
24 to do to me, I don't care," and there's
25 no money, who is going to foot the bill?

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1 Or is the program abandoned?

2 MR. SIVAK: No.

3 MS. HENRY: Based on the
4 relationship that we've had with the PRP
5 during the RI and FS, we believe that we
6 will be able to negotiate with them and
7 that they will --

8 MS. PALADINO: But in the event
9 they do not.

10 MR. SIVAK: We have enforcement
11 tools available to us where we can order

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12 them to do the work. If they don't
13 willingly sign on to do the work, we can
14 order them to do the work.

15 MS. PALADINO: And to pay for it?

16 MR. SIVAK: Yes, to the ability
17 that they can pay, yes, we have
18 enforcement tools that will allow us to
19 order them to do the work.

20 MS. PALADINO: Okay.

21 And you mentioned before about the
22 radioactive element in this, but,
23 according to your statement tonight, you
24 have a fence and signs around the
25 radioactive piece of this.

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1 How does that -- how do signs or a
2 fence stop radioactivity from getting
3 into the air, the ground, the water, the
4 soil?

5 I don't understand why that should
6 make us feel better, to have fences or
7 signs.

8 MS. HENRY: I was just basically
9 describing what was there.

10 MS. PALADINO: Okay.

11 MR. SIVAK: Again, first of all,
12 keep in mind that the radioactive slag
13 pile that exists is not part of the
14 Superfund site right now.

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15 MS. PALADINO: Right. I'm just
16 bringing it because you mentioned it in
17 your presentation.

18 MS. HENRY: It was for
19 informational purposes.

20 MS. PALADINO: I'm just going to
21 conclude by saying that I also am not in
22 favor of Alternative 3.

23 And Alternative 4, when we're
24 talking about a risk, to me, the risk of
25 any child, adult, teenager, present,

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1 past, or future, is worth the price.

2 And what would be the price of a
3 human life?

4 Because I'm sure data will show
5 that one of the reasons we're on the
6 Superfund list the last thirty years is
7 because there have been risks to human
8 life in this area. And that's been
9 documented.

10 The difference financially between
11 Alternative 3 and Alternative 4 is \$6
12 million. And if you had to treat just a
13 handful of cancer patients, you would
14 well exceed \$6 million.

15 And isn't that -- isn't a life
16 worth that?

17 To me, it is.

18 MR. SIVAK: Thank you.

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(Applause)

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MS. AYALA: Four, five, and six

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can come up.

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MR. SIENCZENKO: Hello. My name

23

is Walter Sienczenko. I live at 236

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West Arbor Avenue.

25

I bought my property in 1989. Two

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weeks later, I had men in white suits

2

walking past my property digging wells.

3

Now, Northwest Boulevard, a lot of

4

people have cancer, a lot of women have

5

health problems, they lose their

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children, they're stillborn, on Arbor

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Avenue all the way down west Avenue.

8

what I have now, a couple years

9

ago people came to my property, put some

10

wells in the back of it, took my fence

11

down and had my sheep running all over

12

west Avenue. No one asked me about the

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fence. Nobody put the fence back.

14

The problem is now we have a tiger

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by the tail in this town running violent

16

in Newfield. The tiger, we can't talk

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about it because it's behind the fence,

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it's encaged. That's fine.

19

But the dust coming from it, the

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rain coming from it, everything coming

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off that tiger is going down the stream

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22 of water. That's why contamination on
23 the other side of the pile is a lot
24 smaller than the contamination in the
25 area I live.

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1 By the way, my farm is right next
2 to the farm parcel. Right next to it.
3 I have seven acres. We have animals
4 walk around, rabbits with all kinds of
5 bumps on them and rotten skin, and deer
6 dying. Hunters shooting deer on my
7 property, they cannot eat it because of
8 contamination, the liver, everything
9 else inside destroyed because they're
10 drinking from the pond.

11 So, how is it going to help us not
12 talk about the whole thing?

13 The best thing to do is clean up
14 the pile next to my house, clean up all
15 that contamination, dig it out. The
16 only problem is the mountain is still
17 there and everything falls off the
18 mountain, down the stream, goes down the
19 river. No different than the thing that
20 happened in Vineland Chemical. Same
21 thing.

22 We cannot talk about the main
23 thing, the tiger that's inside the
24 fence.

25 My daughter-in-law used to live on
Page 64

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1 Rena Avenue, right here in Newfield.
2 Her name is Olivia Walsh. She grew up,
3 she played in the back of Shieldalloy.
4 She played in the back. They'd canoe,
5 they swam in the retention ponds, kids
6 swim in it, they played with barrels
7 full of green stuff, slime, that they
8 put on themselves. Well, now she's
9 forty years old and has all kinds of
10 health problems. She has problems with
11 herself and her children.

12 And they had a fence around it.
13 That's my comment.

14 Number four would be working fine,
15 but first you have to eliminate the big
16 problem. That's the problem.

17 I know what you're here for, but
18 best thing is to take it out. But the
19 whole problem is all the water is coming
20 down the hill.

21 That's my comment.

22 MR. SIVAK: I know I said --
23 I'm sorry, are you finished?

24 MR. SIENCZENKO: Yes.

25 MR. SIVAK: Thank you for your

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comment.

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(Applause)

MR. SIVAK: I know I said before we weren't going to talk about the slag pile, and I give you guys a lot of credit because you're not really talking about it.

MR. SIENCZENKO: Right.

MR. SIVAK: But we're kind of talking about it.

MR. SIENCZENKO: It's there.

MR. SIVAK: It is there.

MR. SIENCZENKO: The invisible elephant.

MR. SIVAK: So, we're lucky tonight to have someone here from NJ DEP. Donna Gaffigan is the Project Manager for Shieldalloy. Donna works on the chemical side of the house at NJ DEP. She's not here representing the rad portion of the site, but I asked Donna if she could give an update on what's going on with the slag pile.

It is not part of the site, but she has a little bit of maybe

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information that she can share with everybody tonight.

MR. SIENCZENKO: Thank you.

MR. SIVAK: Thank you.

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5 MS. GAFFIGAN: I guess I'll just
6 say this on the record, then?

7 MR. SIVAK: Yes.

8 MS. GAFFIGAN: I'll read it.

9 As many of you may know, in 2009
10 the Nuclear Regulatory Commission and
11 the State of New Jersey entered into an
12 agreement that transferred the authority
13 to regulate the radioactive materials at
14 the Shieldalloy site from NRC to DEP.

15 Shieldalloy has filed a series of
16 appeals in the District of Columbia
17 Circuit Court of Appeals challenging
18 this transfer of authority. The DEP
19 currently possesses authority over the
20 radioactive materials at the site;
21 however, the D.C. Circuit Court will
22 determine if DEP retains that regulatory
23 authority.

24 NRC supports New Jersey retaining
25 regulatory authority. New Jersey, in

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1 turn, supports the NRC in its appeal and
2 is participating in those proceedings as
3 an intervenor, a legal term. Oral
4 arguments on the hearing are set for
5 September 2014.

6 For more information, you can
7 contact the DEP Bureau of Environmental

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Radiation at 609-984-5400. And that

8
9 person's name is Jenny Goodman, so,
10 she'll be able to answer questions.

11 Right now, we're apparently in
12 legal limbo. We understand your
13 concerns, but this is not the place to
14 address those at this time.

15 MR. SIVAK: Thank you, Donna.

16 Again, that's kind of a status
17 update on where we are right now.
18 Hopefully, that gives you a little bit
19 more information than we had before, and
20 I suspect that Jenny's phone will be
21 ringing quite a bit tomorrow.

22 MS. AYALA: Five, six, and seven.

23 MS. LESHAY: My name is Mary
24 Leshay. I live here on Catawba Avenue
25 in Newfield.

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1 People have already addressed
2 issues. I want to make a comment.

3 With the economy the way it is and
4 people looking for housing, that I come
5 across incidents where veterans are
6 looking to purchase homes in the area
7 under the VA mortgage loan and are being
8 denied because of the Superfund, because
9 this is a toxic site.

10 I'm just wondering, are you aware
11 of it, and is this being addressed so

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12 people know what's going on as far as
13 getting loans?

14 Are you aware of that?

15 MR. SIVAK: We are not aware of
16 that.

17 I know there are regulations in
18 New Jersey for realtors to follow
19 regarding disclosure of things they know
20 about. I don't know what the
21 regulations are. I don't know what they
22 are required to disclose.

23 MS. LESHAY: I do know someone
24 that wanted to live here back in
25 Newfield, veteran from Iraq, and went

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1 through the VA because he is a veteran
2 to get a mortgage to purchase a home.
3 And he was denied and told that they
4 will not be able to give a loan within a
5 30-mile radius of the site.

6 MR. SIVAK: I've never heard that.
7 I work on a lot of Superfund sites
8 throughout New Jersey, a lot of
9 communities that have Superfund sites in
10 them, and I've never heard of denial of
11 mortgage based on a 30-mile radius from
12 a site.

13 MS. LESHAY: They were actually
14 surprised to hear that too. They were

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wondering because --

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MR. SIVAK: I apologize I don't.

MS. LESHAY: That's all right.

We're concerned because of housing
and people wanting to purchase homes.

MR. SIVAK: Thank you.

MS. LESHAY: Thank you.

(Applause)

MS. MERCKX: My name is Cindy
Merckx, Sentinel of Gloucester County
newspaper. I've been a reporter in this

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area over twelve years covering this
story. Linda Paladino did a great job
getting most of my questions.

What I wanted to ask is why did
you guys go with number three instead of
number four?

Of course, we see the money, but
what was your reasoning to go with
number three instead of number four?

I didn't hear that.

MS. HENRY: Well, basically, when
we compared both remedies with the nine
criteria, and based on what's already
been done at the site -- there's areas
that were capped already -- we thought
it was a better balance. When you
combine all the criteria, this one made
more sense.

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19 If you excavate one area, there's
20 other areas where -- you know, that are
21 capped, and that does not present a
22 risk. So, those still remain --

23 MS. MERCKX: When you say there
24 are other areas that are capped, is
25 there anything in New Jersey that has

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1 chromium as well as the same materials
2 that are here?

3 Is there anything in New Jersey
4 that you could relate this to so that we
5 can feel a little bit, you know, easier
6 as to it's going to work?

7 Is there any model that you're
8 basing your decision on?

9 MR. SIVAK: First of all, the only
10 difference between three and four --
11 they're both doing the same action in
12 the sediments of the Hudson Branch, and
13 the only difference is the onsite
14 facility soils, and that's the capping
15 versus the excavation.

16 MS. MERCKX: Right.

17 MR. SIVAK: The two reasons why
18 we're even taking action in the soil are
19 vanadium from a human health
20 perspective, and vanadium and chromium
21 from an ecological perspective.

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MS. MERCKX: Right.

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MR. SIVAK: So, because capping is an appropriate remedy at sites, because when we compare it against some of those

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nine criteria, like implementability, it ranks higher, short-term, whatever.

We do have other sites in the state where we've put capping in place for metals. I can't think of a site right now, a Superfund site, where we have chromium caps in place --

MS. MERCKX: I guess kind of what disturbs a lot of people when we read about caps, Franklin Township, thirty years ago, they capped a landfill, normal household waste; thirty years later, we have monitoring wells, now we have a methane gas problem. It leached across under the river and into houses, into their basements. And the town got stuck with the bill of taking a bond.

This concerns me for the residents of Newfield once you walk away, that they'll also, as Loretta Williams, who's been on this for a long time, there are concerns.

So, that's why I'm asking where your base of information is from, if it's in New Jersey, that has a

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1 successful track record as to why you
2 went between three and four.

3 MR. SIVAK: We have looked at
4 other sites where capping was selected
5 as a remedy; some of them are older
6 sites, some of them are newer sites.

7 We just did a remedy for a site in
8 Jersey within the last year with mercury
9 contamination, and we're capping that.

10 Jersey City has a lot of chromium
11 ore processing residue waste where
12 capping remedies have been selected; not
13 under the federal Superfund program, but
14 under other environmental programs as
15 well.

16 So, capping for metals is pretty
17 common. From an engineering
18 perspective, the caps are easy to
19 design.

20 For this particular site, because
21 we're not concerned about leaching to
22 groundwater here, we're concerning with
23 interrupting the direct contact with
24 this material, we have a lot of
25 expertise in designing those types of

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caps.

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We're not worried about things like methane gas from landfills. We don't have organic material decomposing producing this methane gas. Nowadays when we would be designing a landfill cap, we would include methane gas on there, we would monitor that as part of our operation and maintenance of that type of a remedy.

So, we do have a lot of expertise in designing these types of caps, we know what to look for when we're monitoring them in the future, we know how to ensure that they remain protective and that they're performing as we expect them to.

MS. MERCKX: The residents know it should be done full throttle and know that it's done and have that ease that after twenty years, that you're going to be back and checking.

Thank you.

(Applause)

MR. KNORR: Good evening. My name

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is Ed Knorr, 1053 North Tuckahoe Road,
Gloucester County, Williamstown.

I've been at several different
hearings. And a lot of times my concern
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5 is, especially with this site -- I was
6 here for the radioactive issue way back
7 with the NRC.

8 Dates of interest: 1955 to 2006,
9 Shieldalloy was in the processing mode;
10 1979, DEP addresses community at risk;
11 1986, State restricts the use of wells
12 in the area; 1996, water treatment is
13 done because of the lagoon issues and
14 the groundwater.

15 The problem is through all this,
16 in 1984, it was put on the Superfund
17 site. The concern is all these years --
18 they were in business for 51 years,
19 Shieldalloy. Today, we're talking about
20 remediation plans. It's 2014. We're
21 talking over a half a century of
22 contamination.

23 And mostly what I've gotten out of
24 this tonight is we're talking about the
25 onsite contamination and not what has

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1 occurred in the past and what's been
2 traveling through the water systems,
3 maybe the past twenty years, transport
4 mode of a lot of these chemicals.

5 I've been in the environmental
6 field, health field, for 34 years. As
7 an environmental health investigator, a

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8 lot of times you have to try to connect
9 the dots. They're not all that easy.

10 My concern and -- unfortunately,
11 Senator Lautenberg passed away. I was
12 trying to get a better understanding so
13 that we could expedite the EPA Superfund
14 to become more expedient. We spend too
15 much time spinning wheels.

16 No offense to your health
17 assessments, but I think they're as
18 useful as used toilet paper. I just
19 don't think that we can take those
20 health assessments because the human
21 body -- it's different for everyone.

22 Take, for instance, smokers: Some
23 people can smoke and never have lung
24 cancer; a person can smoke for two
25 months and have lung cancer. We don't

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1 know.

2 The probability of concerns for
3 the contaminants on this site is a very
4 high risk. We can minimize that to a
5 certain extent. Putting a cap in is not
6 a solution, it's an excuse; it's an
7 excuse used to say, "Out of sight, out
8 of mind."

9 The caps are not the way -- you
10 know, this is 2014. What are we going
11 to do, cap every site all the time

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because of a cost factor?

\$5.1 million, so to speak, for capping and the cleanup of the Hudson Branch. \$11.1 million for total cost. By the time we're done with all these seminars, all this spinning of wheels and everything, probably spend \$15 million and we're back to capping.

why can't we just expedite it, go ahead, remove everything?

It's a risk factor to the people of Newfield. When you talked about issues in the past or you're talking about the health risk of the present and

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the future, we need to talk about the past. 1955 to 2014, a lot of time has passed.

what about the people growing up in those years? How were their bodies affected? what kind of contamination was there?

We don't know. Almost like the Ciba-Geigy issue in Toms River with the lagoons.

The problem is, I think the term was used "reduce" the risk.

In reducing the risk, do we reduce it a little or a lot?

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15 In reality, it shouldn't be
16 reducing the risk, it should be
17 eliminating the risk.

18 (Applause)

19 MR. KNORR: In order to do that --
20 I think the one concern about the health
21 assessment is that we didn't really look
22 at the classification of people.

23 we're assuming adults, but what
24 about the children?

25 The health assessment didn't break

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1 down to show children's exposure versus
2 adults'. There's a very serious concern
3 there because per body weight, there's
4 an issue there with how much they can
5 breathe, how much they can absorb. And
6 this has been a long time with water
7 contamination issues that we've had in
8 our town.

9 The problem here, again, there's
10 one to two foot. Now, in the paperwork,
11 it says one- to two-foot cap. That's a
12 big subjective type of move. Now, is it
13 one-foot? Is it two-foot? Is it
14 eighteen-inches? Is it sixteen-inches?

15 Don't know.

16 But even putting this cap in, when
17 you put a cap on something, does that
18 mean everything disappears? Out of

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19 sight, out of mind?

20 The problem is, you put the cap on
21 something -- how did you classify these
22 contaminants in the ground?

23 Are they stationary contaminants
24 or could they have a transport risk?

25 MR. SIVAK: As I said earlier,

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1 we've been investigating the
2 groundwater. We've been analyzing the
3 groundwater for the last 25, 30 years.
4 We did not see vanadium in the
5 groundwater at all. We do not believe
6 the vanadium is migrating through the
7 groundwater.

8 We do know there's chromium in the
9 groundwater; however, we believe that
10 the major source of the chromium has
11 been waste lagoons that have already
12 been remediated. Those were actually
13 where a lot of the processed water was
14 dumped.

15 We don't believe that this little
16 area, this 1.3-acre area, is a
17 continuing ongoing source of chromium
18 contamination to the groundwater.

19 MR. KNORR: I know you have
20 certain CERCLA formulas, but in the
21 future, why do we keep capping these

22 SMC Public Meeeetint Transcript.txt
sites?

23 The people in Newfield,
24 surrounding area, they have to live with
25 this every day. Now, if DEP or EPA

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1 wants to set their field office on top
2 of the cap and study it, that's fine.

3 But the concern is that we keep
4 putting these caps on different
5 landfills and different toxic waste
6 sites, and, yet, when you look at the
7 map of New Jersey -- you know, in 2010,
8 we were considered the most contaminated
9 state per square foot in the country.

10 That is a concern that
11 statistically is associated -- not
12 correlated, but statistically associated
13 with health issues. The concern is why
14 don't we start doing the program where
15 we start cleaning these sites up?

16 We're only talking about \$6
17 million to properly clean this up. Get
18 rid of it. We don't need the cap.

19 Radioactive, that's a separate
20 issue for a separate time. But clean up
21 the site of any contaminants to make
22 sure it is clean.

23 How much money is it going to cost
24 to monitor every five years?

25 How do we know what happens

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1 between year two and year four under the
2 cap?

3 Maybe there is some type of
4 contaminant. There's just too much
5 variables and concerns for human health
6 to just put a cap and walk away from it.
7 The cap's like putting a dirty Band-Aid
8 on a cut; it will only last so long.

9 You don't want to have to keep
10 turning around and monitoring this if
11 you don't have to. Spend the money now.

12 who's responsible?
13 shieldalloy. shieldalloy
14 contaminated the ground.

15 Know what's fascinating? If a
16 small business person dumped chemical in
17 his backyard, he's almost handcuffed and
18 taken to jail. He's given thirty days
19 to clean the site up. In front of a
20 judge.

21 Now shieldalloy, twenty years, and
22 now we're trying to negotiate?

23 There's no negotiation. They pay
24 the price. Clean it up the right way.
25 They damaged it, they put a risk on

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1 every resident in Newfield, and they
2 shouldn't be left off the hook.

3 If they don't want to pay, take
4 their grounds, put a lien on it.
5 Somehow you have to recoup the money, I
6 know, but, unfortunately, they're held
7 accountable for the contamination.

8 And the question again comes:
9 This has been a long time coming. Who
10 was watching the store during all this
11 contamination? How come this was left?

12 We have government agencies who
13 oversee. Normally, you have a set
14 protocol and it's a tiered level of
15 knowing what companies produce what,
16 whether it's radioactivity, whether it's
17 chemical, hexavalent chromium, whatever
18 concerns and issues. There's oversight
19 to go in and see.

20 Somewhere along the line, somebody
21 dropped the ball because the data showed
22 that this contamination has been going
23 on for, like, thirty, forty years.
24 Granted, the EPA hasn't been around that
25 long. DEP, I don't know if they've been

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1 around that long; sure don't look it,
2 but maybe they have been.

3 However, the concern is opposition
4 to the cap has to be -- you know, number

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5 four has to be the only way to go with
6 this. Clean it up, and it's done with.

7 Thank you.

8 (Applause)

9 MS. AYALA: Eight, nine, and ten.

10 MR. TONETTA: Good evening. My
11 name is Richard Tonetta. I'm Solicitor
12 for the City of Vineland.

13 I'm here with Council Vice
14 President Paul Spinelli and our Director
15 of Health Dale Jones, as well as some
16 residents of Burnt Mill Pond.

17 I've read your Superfund proposed
18 plan, and I notice that it does identify
19 areas of health concern, which includes
20 the Hudson Branch as well as Burnt Mill
21 Pond.

22 However, when I look through that,
23 it gives only the proposal for the
24 preferred alternative including
25 excavating and disposing of sediment

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1 that present an unacceptable risk to the
2 environment and restoring the excavated
3 areas only for the Hudson Branch.
4 There's no discussion with regards to
5 the cleanup of the Burnt Mill Pond.

6 There's a little concern, and
7 maybe you don't know this, and I'm

8 SMC Public Meeeetint Transcript.txt
assuming the DEP does, Burnt Mill is a
9 residential area, but, more importantly,
10 it's a Green Acres park. So, it's
11 funded by DEP.

12 Thousands and thousands of dollars
13 have gone into this park for the use by
14 not only the residents of Vineland, but,
15 under Green Acres regulations, by the
16 residents of the State of New Jersey.
17 It's used for fishing, boating,
18 birdwatching, walking. Again, it's
19 located in a residential neighborhood.

20 I'm sure you're aware that parks,
21 under federal regulation, as well as
22 DEP, any cleanup has to go to a
23 residential quality; not industrial
24 quality as you're talking about here,
25 but a residential quality.

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1 When I look at your findings on
2 Page 8 of your document dealing with
3 Burnt Mill Pond, it says that, "Four
4 surface water samples were collected and
5 analyzed from the Burnt Mill Pond prior
6 to its draining by the City of Vineland.
7 Aluminum, iron, manganese, and vanadium
8 were detected in three of the four
9 surface water samples at concentrations
10 exceeding the SWQS."

11 It goes on to say in that
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12 particular paragraph that historical and
13 recent remedial investigation shows that
14 it has decreased but it still exceeds
15 the standard that's required.

16 First question is where can I get
17 copies of these reports?

18 Not only the historical reports,
19 but the present reports.

20 MS. HENRY: The reports are in the
21 repository. I forgot to the mention
22 that. They're in the library right next
23 door.

24 MR. TONETTA: So, all of the
25 reports you mentioned on Page 8 --

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1 MS. HENRY: All the reports are
2 available in the repository.

3 MR. TONETTA: You go on to say
4 that, "Four sediment samples --"
5 sediment samples, not the water samples
6 -- "(top six inches) were collected from
7 Burnt Mill prior to draining. Chromium,
8 copper, manganese, mercury, and nickel,
9 were detected in all sediment samples
10 collected from the Burnt Mill Pond at
11 concentrations exceeding the ESCs."

12 You don't mention in here that
13 historical data would show that the
14 concentrations increased as a result of

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15 the decrease in the water samples,
16 because, obviously, the water samples as
17 the pond -- I call it a "pond," it's
18 really a lake -- as it was drained, the
19 water receded, and, obviously, the
20 samples or the pollutants then find
21 themselves in the soil.

22 So, while you mention the
23 historical data shows the water levels
24 of pollutants decreasing, you make no
25 mention with regards to historical data

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1 of the soil samples.

2 Do you have that information?

3 MS. HENRY: Soil samples that were
4 taken?

5 MR. TONETTA: Historical data of
6 soil samples.

7 MR. SIVAK: The sediment samples.

8 MR. TONETTA: Correct.

9 MR. SIVAK: All of the sampling
10 that we conducted as part of the
11 remedial investigation were included in
12 our evaluation of what the potential
13 human health ecological risks were.

14 MR. TONETTA: You mentioned the
15 water samples being decreased, but you
16 don't mention whether the soil samples
17 have increased.

18 Is there a reason why that isn't
Page 86

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19 mentioned?

20 MR. SIVAK: I don't know that off
21 the top of my head, how that information
22 was presented or the context of that.

23 MR. TONETTA: On Page 9 of your
24 report, you talk about human health risk
25 assessment, and it's evaluated to

♀

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1 potential human health risk to, one, a
2 recreational trespasser.

3 what is the definition of
4 "recreational trespasser"?

5 (Laughter)

6 MR. SIVAK: What we do when we are
7 trying to figure out what types of
8 populations might be exposed, we look at
9 the land use and look at are there
10 residents? Are there commercial
11 industrial workers? Are there utility
12 workers?

13 when we get into recreational
14 areas, when we get into areas where, for
15 example, it's a commercial area but we
16 have reports or we have visual
17 observation of nonworkers cutting across
18 it, they are trespassing. It's not
19 their land, but we know people are using
20 it.

21 So, we have to come up with a name

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22 to characterize these type of exposures.
23 So, we call them trespassers, we call
24 them recreators, and in this particular
25 instance, based on the information that

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1 we had, we call them recreational
2 trespassers.

3 MR. TONETTA: So, you consider
4 someone that uses a public park that's
5 funded by the State of New Jersey DEP
6 Green Acres a recreational trespasser?

7 (Laughter)

8 MR. TONETTA: I'm not meaning to
9 be funny. I'm trying to figure this
10 out.

11 It would seem to me if you're
12 describing recreational trespassers, you
13 believe that their use is a lot less
14 than someone who would use it as a
15 recreational user. And if that's the
16 case, then the data that you have
17 utilized to determine the potential
18 human health risk is flawed.

19 MR. SIVAK: Okay.

20 MR. TONETTA: So, I would suggest
21 there has to be another definition for
22 people who use a public park, because
23 those people use a public park a lot
24 more than a person who would be
25 considered a trespasser.

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1 MR. SIVAK: Okay.

2 MR. TONETTA: So, I think it's
3 important that that information be
4 provided and someone give us some
5 information regarding whether a
6 recreational user as in a public park
7 would have the same HHRA as a
8 trespasser.

9 MR. SIVAK: Sure, we can look at
10 the exposure scenario that was used to
11 characterize the risk to that person.

12 Typically, when analyzing sediment
13 exposure we do take into account some
14 sort of climatological influence. We
15 recognize that folks aren't really
16 accessing surface water and sediments
17 during winter months, obviously when
18 it's cold. Things like that.

19 But we can look at what kind of
20 exposure scenario, what type of exposure
21 frequency, was developed for those
22 people who would access Burnt Mill Pond.

23 MR. TONETTA: Now, the use of
24 Burnt Mill Pond, as DEP is probably
25 aware or should be aware -- and I

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understand that there's different

1
2 branches of the DEP and one hand may not
3 know what other is doing.

4 Again, I'm not meaning to be
5 smart, I mean it because it's true. DEP
6 is such a large group that sometimes one
7 department within the DEP is unaware of
8 what Green Acres might do. And I
9 understand that. It's just a fact of
10 government at this point.

11 My concern is in a recreational
12 setting such as this -- this park was
13 set aside for fishing, boating,
14 birdwatching, wildlife watching.

15 what is the consideration of some
16 kid who comes over and catches a bunch
17 of sunnies and wants to eat them?

18 Has that been considered?

19 Because, again, the park was set
20 aside by DEP through Green Acres for
21 that purpose. So, I have a concern
22 regarding that.

23 And, again, a concern regarding --
24 again, it's my understanding your job is
25 to somewhat coordinate with DEP and

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1 state regulations in the use of this
2 property. So, if the use of this
3 property is, in fact, a public park and
4 both federal regs and state regs require

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5 parks to be cleaned to residential
6 standards, how can we possibly deal with
7 the use of this property or the
8 maintenance of this property based upon
9 industrial standards?

10 This park is also, just so
11 everybody is aware, part of the State of
12 New Jersey Recreation and Open Space
13 Inventory. I think they call it ROSI or
14 whatever acronym.

15 So, my concern is that we have a
16 park that's recognized by the State of
17 New Jersey as a recreational and open
18 space facility that is heavily
19 contaminated; by your own findings,
20 exceeds all the necessary standards.
21 And I assume that those standards are
22 industrial, not residential. So, I have
23 a concern for that.

24 And, more importantly, I think
25 this is a good thing that this is coming

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1 to your attention now, and maybe a lot
2 of this was not aware to you. But you
3 do mention in your report that you
4 recognize that the dam that was building
5 the lake is now in disrepair and needs
6 to be repaired. Well, needless to say,
7 we have almost a million dollars of DEP

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8 money, Green Acres funds, to fix this
9 dam.

10 why before we fix the dam doesn't
11 somebody recognize the fact that your
12 study reveals that this property is
13 contaminated by Shieldalloy and exceeds
14 the industrial standards, let alone
15 residential standards, and, before we
16 fill it in, clean it?

17 It just doesn't make sense to me
18 that we know the contaminants come from
19 Shieldalloy, we know that the
20 contaminants exceed your requirements,
21 and, yet, in your report, you failed to
22 address the cleanup and remediation of
23 this park.

24 And we looked at another part when
25 you talked about the ecological risks.

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1 That's one of the factors that you
2 consider. And I read on Page 10 dealing
3 with the Hudson Branch that your intent
4 is to, "Prevent exposure to contaminated
5 sediments in the Hudson Branch that pose
6 an unacceptable ecological risk."

7 I fail to see how a two-foot
8 stream has as much ecological risk as a
9 pond -- a seventeen-acre lake that's
10 used by birds, fish, deer, other
11 wildlife. If there's an ecological risk

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12 factor that you need to consider, if
13 you're considering the Hudson Branch,
14 then you need to consider the pond ten
15 times greater.

16 And, so, I need to have questions
17 answered why you identify a problem in
18 the Burnt Mill Pond, you identify it as
19 a risk factor that exceeds your
20 standards, and you do not identify a
21 remediation process.

22 MR. SIVAK: So, one of the bases
23 for EPA determining the need to take an
24 action is the triggering of an
25 unacceptable risk, not necessarily the

105

1 exceedance of a surface water standard.

2 Based on the exposure scenarios
3 that we developed for users of the Burnt
4 Mill Pond, we did not identify an
5 unacceptable risk to the Burnt Mill
6 Pond.

7 We found the highest levels of
8 sediment contamination up near the SMC
9 facility. They were highest up there.
10 As you move down through the stream
11 system, those concentrations decreased
12 significantly.

13 So, that is why we believe that,
14 based on all of the samples collected,

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15 all of the study that's been done, that
16 by treating the contaminated sediments
17 closest to the facility in the areas
18 that we've identified in the figures and
19 the documents that are in the
20 repository, that that will address the
21 primary issue.

22 We will continue to monitor the
23 surface water once we excavate those
24 sediments, once we get the source of the
25 surface water contamination -- what we

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1 believe is the source of the surface
2 water contamination out of there, that
3 the surface water quality will rebound,
4 and then we will be able to achieve the
5 ambient water quality standards that you
6 cited in your comment to us.

7 You should also please be aware
8 that ambient water quality standards are
9 not based on residential or industrial.
10 It's a generic standard that is based on
11 either the protection of aquatic life or
12 the protection of human health through
13 consumption of fish or fishing, drinking
14 water.

15 So, they're not necessarily based
16 on an industrial scenario or a
17 recreational scenario like we would if
18 we were evaluating exposures to

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19 sediments or to soils or something like
20 that.

21 MR. TONETTA: Well, I hear what
22 you're saying, but when I look at the
23 nine Superfund evaluation criteria,
24 number two, compliance with applicable
25 or relevant and appropriate

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1 requirements, evaluates whether the
2 alternatives meet federal and state
3 environmental statutes, regulations, et
4 cetera.

5 We all know that the state
6 environmental statute requires that a
7 park cleanup be consistent with a
8 residential quality. So, if that's one
9 of your own nine requirements, I'm not
10 sure I understand why that's not being
11 considered.

12 Number two, I understand what you
13 are telling me about the potential
14 hazard, but, again, I find it flawed
15 because you're basing it upon a
16 recreational trespasser.

17 I have to believe that you need to
18 go back and take a look at that in terms
19 of the use of Burnt Mill Pond as a
20 complete recreational facility, where
21 over a million dollars will be expended

22 SMC Public Meeeetint Transcript.txt
by DEP. And placing this on our
23 Recreational and Open Space Registry,
24 I'd hate to put a skull and crossbones
25 next to that registration. So, I just

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1 ask that you take a look at that.
2 MR. SIVAK: Sure, absolutely.
3 MR. TONETTA: Where did you say we
4 can get those reports?
5 MS. HENRY: In the library
6 located --
7 MS. AYALA: Newfield Public
8 Library.
9 MR. TONETTA: Would you feel that
10 it would be compelling if you found that
11 while the water samples decreased in
12 terms of its pollutants, that the soil
13 and/or sediment pollution increased?
14 Would that not be compelling?
15 MR. SIVAK: I would suggest that
16 our evaluation of the trends of those
17 data are incorporated in those reports.
18 And the conclusion of that
19 evaluation suggested that if we address
20 the sediments, as I said earlier, in the
21 upper reaches of the Burnt Mill -- of
22 the Hudson Branch, excuse me, then the
23 surface water quality throughout will
24 improve.
25 We can go back and we can
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1 absolutely look at the exposure scenario
2 that was developed for users of the
3 park. Perhaps it may be a better plan
4 to not focus so much on the title of
5 "recreational trespasser." That title
6 was developed based on information we
7 received from the folks we had talked to
8 about what types of people frequented
9 those areas. And, so, based upon that,
10 that's the name we came up.

11 But I think what's more important
12 is for us to identify and get back to
13 you on the scenario of how many days a
14 year we expect folks to be out there,
15 what kind of activities they participate
16 in, what kinds of exposure they would
17 have, things like that.

18 Going back to your earlier
19 statement while you're still here, our
20 second criteria, threshold criteria,
21 compliance with ARARs, we do agree state
22 ARARs regarding surface water quality
23 need to be met. We have that in our
24 proposed plan. We have a monitoring to
25 ensure that surface water quality does

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not pose an unacceptable risk to

1
2 ecological receptors. So, we do agree
3 with you on that point.

4 There are no state ARARs for
5 sediments. There are state soil
6 numbers, there are not state sediment
7 numbers that have been promulgated; so,
8 therefore, the evaluation of sediment is
9 done on a risk-based perspective.

10 Superfund law allows us to look at
11 the sediment contamination and take that
12 contamination through our ecological
13 risk assessment process, which we have
14 done. And those sediment levels that we
15 have seen, the contamination in those
16 sediments, have not resulted in
17 unacceptable ecological risk for
18 sediments in the Burnt Mill Pond area.

19 MR. TONETTA: Do we not, then --
20 we do not assess the soils, only the
21 sediment?

22 MR. SIVAK: If soils were sampled
23 in that area, they were evaluated as
24 soil. But if we have sampled sediments
25 in the pond, we evaluated them as

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1 sediments.

2 MR. TONETTA: Would it not be
3 important to know what was in the soil?

4 MR. SIVAK: If our investigation
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5 did not conclude that there was a
6 transport mechanism from sediments onto
7 the soil, then that would be documented
8 and there would be no investigation.

9 I have to admit, I didn't prep on
10 that part of it prior to this meeting.

11 We had gone through that part and
12 we had not identified that there was an
13 acceptable transport mechanism that
14 would bring unacceptable levels to the
15 soils in those areas.

16 MR. TONETTA: That will be looked
17 into as well?

18 MR. SIVAK: I can go back and
19 check on that and get back to you on
20 that and find out exactly what we did in
21 that area, but I don't believe that our
22 evaluation included the sediment
23 contamination in the Burnt Mill Pond was
24 so significant that it being mobilized
25 to the soils would result in

♀

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1 unacceptable human health risk.

2 MR. TONETTA: One last question.

3 As you probably are aware, there's
4 another site that the EPA is working on
5 in Vineland, and that's the Pure Earth
6 site. Paul Kahn from your office has
7 been running that facility. And the

8 SMC Public Meeeetint Transcript.txt
contaminants -- unfortunately, the
9 Hudson Branch also flows at or across
10 this property.

11 So, my question is: Has anyone at
12 EPA level determined whether the
13 contaminants found at the Pure Earth
14 site, such as the metals that you're
15 finding there, may have come from
16 shieldalloy?

17 MR. SIVAK: We did have
18 conversations with Paul Kahn about that
19 and we have extensively evaluated the
20 groundwater at the site, we've
21 delineated that plume that's
22 memorialized in the OUI Record of
23 Decision, we've been monitoring that,
24 we've been sampling that, we've been
25 working on pilot studies to try to

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1 enhance that remedy so that it becomes
2 even more effective than we had
3 originally thought.

4 And our conversations with Paul
5 Kahn, including conversations with our
6 hydrogeologist, have concluded that
7 there's really no connection between the
8 two.

9 MR. TONETTA: Thank you.
10 One last thing, if I may.

11 Obviously, I'm here on behalf of
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12 the administration of the City of
13 Vineland as well as the residents of the
14 City of Vineland. However, we intend
15 upon providing a more thorough and
16 complex written response.

17 I just wanted to make sure that
18 this isn't cutting us off.

19 MS. HENRY: No, no, no.

20 MR. SIVAK: Absolutely not.

21 You don't get one chance to write
22 a comment. You can write a comment
23 every day if you want.

24 MR. TONETTA: Very good. Thank
25 you very much.

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1 MR. SIVAK: You're welcome.

2 (Applause)

3 MS. AYALA: We need to take a
4 five-minute break.

5 (Recess taken)

6 MR. ALLEN: My name is Mark Allen.
7 I live at 11 Rosemont. I'm here since
8 2002 and I've got five children. I'm
9 very concerned with the water quality
10 and what's going on with this all these
11 years.

12 One thing I want to find out about
13 is the public meeting list. I was only
14 notified of this meeting an hour and a

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15 half prior to it starting from the
16 township's meeting phone call they sent
17 out. So, I wasn't even aware of this
18 meeting until an hour and a half prior
19 to it starting.

20 So, I'd like to know when next
21 meeting is so I can be a little more
22 prepared for it.

23 MS. AYALA: You signed up.

24 Right?

25 MR. ALLEN: Yes, I did.

♀

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1 So, I've done that in the past
2 with other meetings, but I don't know if
3 they're quite the same.

4 MS. AYALA: No.

5 MR. SIVAK: We haven't had a
6 meeting for this site, certainly like
7 this, in many, many years.

8 MR. ALLEN: Second, aside from
9 this meeting, is there anything at home
10 we can do as far as a home filtration
11 system that would help us in eliminating
12 some of these contaminants from our
13 water?

14 MR. SIVAK: First of all, I think
15 it's very important for everybody to
16 know that folks that are on public water
17 here in Newfield, that water is tested.
18 It has to meet all state and federal

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19 requirements for the water to be
20 distributed.

21 There has been some information
22 about some wells that have closed
23 recently, so that should serve as notice
24 that that water is tested regularly.

25 There are very, very strict

♀

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1 requirements on public water
2 disinfection and distribution, and all
3 water companies have to meet those
4 standards in order to continue to
5 distribute water.

6 So, that's the first thing that I
7 wanted everyone to be aware of is any
8 water from the Newfield public water
9 supply -- or whatever it's called, I
10 don't know if that's the official name
11 of it -- but if you're getting water
12 through your public water utility, that
13 water will meet all of the very, very
14 strict and very, very health protective
15 public health standards that have been
16 set forth for drinking water.

17 Second thing that you all should
18 be aware of in the room is that, as we
19 said before, we've done very, very
20 exhaustive groundwater investigation of
21 this site, and we continue to monitor

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22 groundwater in our efforts to constantly
23 improve and make more efficient our
24 groundwater treatment remedy at the
25 site.

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1 The groundwater that is affected
2 by the SMC site is not affecting the
3 public supply wells that are supplying
4 water to Newfield. We have a very good
5 understanding of what's going on with
6 the groundwater at the site and we can
7 say with very much certainty that it is
8 not affecting the public supply wells.

9 So, those are two things you need
10 to be aware of as far as our site goes.

11 As far as your own level of
12 concern about drinking water for your
13 children, I understand that you'll
14 always be concerned about that
15 regardless of what I stand up here and
16 say.

17 I can't offer you any advice on
18 what to do about that. There are
19 certainly lots of options for home water
20 treatment systems if you don't like the
21 taste of it, if you're uncomfortable
22 with something.

23 But I can stand here and tell you
24 that our site, the site that we're
25 looking at and the site that we're here

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♀

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1 to talk about, is not affecting public
2 water supply.

3 MR. ALLEN: Testing results from
4 the Newfield water department, it talks
5 about all the contaminants. Chromium is
6 mentioned.

7 MR. SIVAK: Correct.

8 MR. ALLEN: So, how can it be not
9 the same source?

10 MR. SIVAK: I have some
11 information for that.

12 First of all, chromium is a
13 naturally-occurring element. It is
14 found all around the world. Chromium is
15 very prevalent in New Jersey. There's a
16 lot of natural deposits of chromium in
17 New Jersey.

18 Chromium ore processing
19 historically has been very big industry
20 in New Jersey, typically. It's
21 happening a little bit more here, but
22 chromium is a naturally occurring
23 element.

24 We've had our hydrogeologist
25 assigned to this project look at

♀

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1 interconnectivity between our plume and
2 these wells, and we've determined there
3 really is no influence of our site on
4 those public supply wells.

5 So, yes, you are correct in that
6 there's chromium at our site and in our
7 supply wells, but all of the information
8 that we have available, all of the
9 reviews that we've gone through, has not
10 identified any connection between our
11 site and public supply wells.

12 MR. ALLEN: To me, it seems a
13 little odd.

14 MR. SIVAK: And I understand.

15 MR. ALLEN: It's still from the
16 ground, same source where the water is
17 from. Whether it's taken from the
18 ground up top or taken from below, to
19 me, it's too much of a relation.

20 MR. SIVAK: And if I were standing
21 on your side of the microphone and I had
22 my family and I was very concerned about
23 that, I can fully understand what you're
24 saying.

25 I can only answer and tell you the

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1 science and the information we have and
2 what our experts are telling us
3 regarding the connectivity between those
4 two. There could be naturally occurring

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5 chromium deposits, there could be
6 slightly acidic conditions that are
7 causing it to leach in certain areas. I
8 don't know that.

9 we're not studying the groundwater
10 in the area near those public supply
11 wells, we're only studying the
12 groundwater that is associated with
13 site-related contamination and if
14 anything migrated into that groundwater.
15 And based on that evaluation, we cannot
16 find a connection between the two.

17 MR. ALLEN: Alternative 4. For me
18 as well, I prefer 4. That's my standing
19 on that.

20 why would the cost be relevant to
21 us?

22 Because we don't want to hear --
23 capping it is just a Band-Aid. Removal
24 is the best option.

25 I can assume that when the zoning

♀

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1 made it a commercial site, that it was
2 probably for the building of
3 Shieldalloy. Somebody said, "Hey, let's
4 make it commercial," rather than
5 residential because of the intention of
6 the building of the property.

7 Now that the property is not being

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used in that aspect, it should be

8
9 rezoned, I would assume, and cleaned up
10 to a standard below a commercial level;
11 to a residential or a recreational
12 level.

13 So, 4 would seem to redeem that
14 back to that lower level, which it
15 should naturally start off at.

16 MR. SIVAK: I don't mean to
17 interrupt you, but I want to respond to
18 your point while we're still having the
19 conversation.

20 So, EPA does not get involved in
21 zoning at all. That is now our -- we do
22 not influence the -- we work with
23 communities to find out what their
24 zoning is, what their town master plans
25 are, we work with the property owner who

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1 also has a say-so in what the zoning is
2 and potentially might be in the future,
3 and we look at all of that information.

4 You should also understand that
5 the difference between Alternative 3 and
6 Alternative 4, again, the only
7 difference between those two
8 alternatives is how facility soils are
9 addressed; one is capping, one is
10 excavation. Even the excavation numbers
11 are based on excavation to a

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12 commercial/industrial soil cleanup
13 level. It is not excavation to a
14 residential level.

15 Am I correct?

16 MS. HENRY: Yes.

17 MR. SIVAK: Yes.

18 So, even if we implement and we
19 select Alternative 4, that excavation
20 will only be to a level deemed
21 protective for commercial/industrial
22 types of exposure.

23 MR. ALLEN: All right.

24 And two more questions. They're
25 kind of long.

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1 when it comes to the property
2 itself, the facilities, you said there's
3 ground contaminants with dust as well.

4 I've seen myself over there police
5 department vehicles, I've seen
6 commercial vehicles that seem to be
7 subletted there, I've seen numerous
8 Porta-Potties there, I've seen an RV
9 camper as if someone is staying there
10 long term.

11 These vehicles coming on and off
12 the property, are they being detoxed or
13 decontaminated or are they carrying
14 these materials off the premises?

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15 Can they go in and out without

16 being washed down?

17 what's the standard now, since it
18 is a cleanup, for these vehicles coming
19 and going on a daily basis?

20 MR. SIVAK: Great question.

21 My understanding is that they are
22 not being deconned when they come off
23 the property.

24 But I don't know that they need to
25 be, so let's go back and look at the

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1 scenario that was associated with
2 unacceptable health risk for humans.
3 And that was for utility and
4 construction workers in that one area.

5 So, that looks at exposure to
6 soils at surface and at depth. So, in
7 that area we have some vanadium at
8 depth, and we're looking at these people
9 being exposed to that dust being
10 generated on a very intense basis while
11 they're doing these activities.

12 I don't know the scenario that we
13 looked at. Other scenarios I've worked
14 on as a human health toxicologist were
15 utility and construction workers. That
16 includes things like every day for two
17 years. So, you're breathing in that
18 dust that we're assuming is being

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19 generated every day, eight hours a day,
20 250 days a year, for two years or one
21 year or three, I'm not quite sure what
22 scenario we looked at.

23 But the type of exposure is a lot
24 more intense than someone who may come
25 on to the property and be there for a

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1 day or two or a couple of days while
2 doing maybe landscaping activities or
3 they're reading meters or doing other
4 types of activity.

5 And we are concerned in this area
6 about contamination at the surface but
7 particularly at depth. If you notice,
8 we didn't have unacceptable risk from
9 exposure to only surface soil. We only
10 had unacceptable risk from exposure to
11 surface and subsurface soil.

12 So, in that particular area,
13 again, there's something in that
14 subsurface, there's vanadium in that
15 subsurface, that when it's in the air --
16 and vanadium, I believe it's a nervous
17 system toxin. So, when you breathe it
18 in, it's absorbed in very easily and
19 humans are pretty susceptible to that.
20 So, all of those things are why we have
21 a concern of vanadium in that area at

22 SMC Public Meeeetint Transcript.txt
surface and at depth.

23 And when we talked driving in and
24 out, bringing dust and dirt along in the
25 treads of the car or whatever, that's

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1 not of concern to us.

2 You see the difference in those
3 types of exposure?

4 MR. ALLEN: Yeah.

5 You mentioned the health risks and
6 the charts.

7 Is there anything being followed
8 up as far as the health department
9 saying we have a certain number of cases
10 in Newfield going up and it relates back
11 to, you know -- it's hard to put
12 liability on that extreme, but is there
13 anything being looked at to find out,
14 "Hey, we have six kids now that are sick
15 from this area."

16 Or what's going on with the health
17 department compared to the EPA
18 involvement in this site and its
19 residents?

20 MR. SIVAK: That's a great
21 question, and that's a good way to kind
22 of set some more parameters around what
23 EPA's human health risk assessment
24 process does.

25 The EPA risk assessment process is
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1 not a predictive tool looking at
2 individual cases of or incidences of any
3 disease in a population. It's a tool
4 that we use to determine do we need to
5 take a remedial action at a site?

6 It does not look at actual
7 statistics of disease in a community.
8 It is a predictive tool that we use to
9 determine the need to take action at a
10 site.

11 So, what you're asking for is the
12 other thing, which is someone coming in,
13 looking at mortality and morbidity rates
14 from the community of certain diseases
15 and things like that. EPA, by law, does
16 not have the authority to do those types
17 of studies.

18 Those types of studies are
19 deferred to either the state, state
20 health departments, or to an agency, a
21 sister federal agency that's
22 headquartered in CDC, called the Agency
23 for Toxic Substances and Disease
24 Registry; ATSDR, we call it. One of
25 those two agencies, either the state

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health department agency or ATSDR.

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I don't know if there are folks that are currently working on the site right now. I can go back and I can talk to our folks at ATSDR, because we work with them in our offices as well, and see what kind of information they have as well. And we can have them get back to you about any information they might have. It may be countywide, usually it's ZIP-codewide, but they can look and see what information they might have.

So, see me after the meeting and I'll get your contact information.

MR. ALLEN: Sure.

And I guess question B to that is --

MR. SIVAK: Is there a second question or is it corollary B to your first question?

MR. ALLEN: Well, the thing is when you hear about the health costs and diseases that come around and the levels, I guess my point is that shouldn't it be if you're making these

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risk assessments and judging the cost of Alternative 3 to 4, wouldn't you think the health risk involved, associated with that -- it didn't seem it was on
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5 that chart of the health risk that
6 happens during the time of the
7 excavation and whatnot.

8 MR. SIVAK: So, the health risk
9 assessment, human health risk
10 assessment, as I said, is used as a tool
11 to help EPA determine when you need to
12 take an action. Once that decision is
13 made, then we start looking at what
14 levels do we need to clean up to and
15 what technologies or what engineering
16 controls or institutional controls are
17 at availability to address those
18 unacceptable health risks and allow us
19 to meet our remedial action objectives?

20 The law says that we have to look
21 at all of the different remedies -- and
22 came up with four of them for this
23 site -- and take them through nine
24 criteria.

25 Now, short-term implementability

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1 is one of those issues. When Sherrel
2 was explaining that, she was talking
3 about what short-term implementability
4 means -- it's kind of a weird term, not
5 a very self-descriptive term -- is that
6 when you're implementing the remedy, are
7 you creating -- how big of a problem are

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8 you creating when you implement a
9 remedy?

10 For example, when you dig
11 something up, you're creating dust. So,
12 you have to control that dust. How easy
13 is it to control the dust?

14 when you're shipping stuff off
15 site, you have truck traffic that's
16 coming back and forth through a
17 community. You'll likely be
18 decontaminating a lot of equipment
19 because you are into the area where
20 material is highly contaminated and you
21 want to make sure, as you said earlier,
22 that you're not dragging that material
23 off. You have to decon that, so you're
24 creating waste from that material as
25 well.

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1 Those are short-term
2 implementability issues that we weigh
3 against other alternatives that we look
4 at.

5 So, to kind of answer your
6 question in an incredibly long-winded
7 way -- and I apologize, but you've been
8 here long enough to know that that's
9 sort of how I roll -- that is the place
10 where things like the health effects,
11 the potential health implications from

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12 the different alternatives, that's where
13 we factor that in.

14 So, that's one of the reasons why
15 when we look at the nine criteria and
16 came up with the alternatives, why
17 capping this area we felt ranked higher
18 than excavation and offsite disposal;
19 because we felt this was a very small
20 area, 1.3 acres compared to the 67 acres
21 that we've investigated; we felt that
22 based on the contamination that we have,
23 vanadium, it's not migrating to the
24 groundwater, you know, it's only at risk
25 when it gets volatilized and brought

+

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1 into the air. We want to keep it there.

2 That's why we felt the capping,
3 with all the other capping that's
4 already in place at the facility, it was
5 in line with the way the facility is
6 currently structured --

7 MR. ALLEN: Makes sense.

8 MR. SIVAK: -- it's consistent
9 with the footprint of the facility, it's
10 appropriate for the types of
11 contamination that we have, it reduces
12 the short-term implementability risk by
13 digging it up and taking off site.

14 And we felt very strongly that's

15 SMC Public Meeditnt Transcript.txt
why capping was the better alternative
16 for the site.

17 MR. ALLEN: Thanks for your time.

18 MR. SIVAK: Thank you.

19 (Applause)

20 MS. AYALA: Ten?

21 MR. SIVAK: We're up to ten?

22 (Laughter)

23 MR. DEMMY: Jason Demmy, 316

24 Madison Avenue.

25 You were talking about the

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1 capping. I have some questions about
2 the capping.

3 The green shaded areas, you said
4 that those are already caps in place.

5 Are those hard surface caps or
6 vegetative caps?

7 MS. HENRY: Vegetative.

8 MR. DEMMY: The capping which
9 you'll be putting on, the other
10 gentleman said it would be a one- to
11 two-foot cap.

12 would that be an above-grade cap
13 or a surface-level cap?

14 MS. HENRY: Surface level.

15 MR. DEMMY: Okay.

16 And then since it is one point
17 whatever acres, even though it is a
18 67-acre site, would there be some sort
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19 of storm runoff attributed to that or
20 some sort of storm runoff system put in
21 place for the runoff that would be
22 generated by that one point something
23 acres?

24 MR. SIVAK: We would evaluate the
25 need for that in the remedial design

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1 phase.

2 MR. DEMMY: Okay.

3 MR. SIVAK: We would look at --
4 you know, we said a one- to two-foot
5 cap. We would look more clearly at how
6 much we need to scrape, how much we need
7 to bring it to surface, the need for
8 stormwater runoff controls. All those
9 type of things get incorporated into the
10 design.

11 MR. DEMMY: I think my main
12 question is just because that is so
13 close to the elephant in the room that
14 we're not supposed to talk about and
15 where would that water be going and, you
16 know...

17 okay. Thank you very much.

18 MR. SIVAK: Thank you.

19 (Applause)

20 MS. AYALA: Eleven?

21 MR. DEMMY: I was eleven.

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22 MS. AYALA: Twelve, thirteen,
23 fourteen, fifteen?

24 MS. ERICKSON: I'm thirteen, Mia
25 Erickson, 300 Wood Street.

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1 I'm not an expert or anything, but
2 adding to what Jason just asked about
3 the stormwater, it seems as though the
4 decision was already made and there
5 hasn't been --

6 Can you go back to that slide with
7 the four options?

8 I just want to get my words right.

9 MR. SIVAK: That one?

10 MS. ERICKSON: Yes.

11 It seems as though the remedial
12 alternatives are not proposed. It seems
13 as though, from everything I've heard so
14 far, that they are decided already and
15 that Alternative 3 isn't actually an
16 "alternative," it's actually the
17 decision.

18 Is that true?

19 MR. SIVAK: No.

20 It is our preferred alternative.
21 No final decision has been made. The
22 final decision will be made when we
23 issue our Record of Decision.

24 So, we've looked at lots of
25 different alternatives for how to deal
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1 with the unacceptable risk. That's why
2 we're taking an action here, because we
3 have unacceptable risk.

4 we've looked at lots of different
5 alternatives for the vanadium and the
6 chromium in the facility soils and for
7 the five metals in the sediments of the
8 Hudson Branch.

9 of all the different alternatives
10 that we looked at, we whittled them
11 down. Let's get rid of no action.

12 we feel that these three
13 alternatives contain the best technical
14 options for us to address those
15 unacceptable risks. That may not be --
16 one of you sitting in the audience may
17 say, "Did you ever consider this
18 technology? we think that you should
19 consider that."

20 And that's fine. And as part of
21 our developing a response to that
22 comment, we will go back and we will
23 look at the viability of that additional
24 technology. And maybe that turns out to
25 be the best technology that exists and

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1 that becomes part of our preferred
2 remedy.

3 So, of these four alternatives,
4 we've taken these through the nine
5 criteria -- Sherrel talked through them
6 and I gave them in probably more
7 excruciating detail than you could ever
8 hope to deal with -- about why we think
9 capping is the better alternative for
10 the facility soils and why we think the
11 excavating and offsite disposal of the
12 contaminated sediment from the Hudson
13 Branch is a better alternative as well.

14 If you all tell us that you think
15 some other alternative is better and you
16 give us your reasons why, as we
17 deliberate through that we may change
18 our preferred alternative. It has
19 happened in the past that we have
20 changed our preferred alternative to
21 something else based on community input,
22 based on state input, based on
23 information that we gather as part of
24 this process.

25 So, your information, your

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1 comments, are very, very valuable to us.

2 MS. ERICKSON: With that being
3 said, as I suggested, Jason mentioned
4 the cap and stormwater runoff.

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5 wouldn't an acre -- 1.34 acres of
6 capping cause a significant amount of
7 stormwater runoff that would actually
8 potentially take some of the less
9 concentrated contaminants from the other
10 areas that are under soft capping, run
11 it into the area of the Hudson Branch
12 that is going to be excavated, which
13 will undo all of the excavation efforts
14 and possibly cost the \$11 million
15 originally anyway?

16 So, cleaning it instead of capping
17 it and causing a runoff and actually
18 wash it further down I would say would
19 make a lot more sense than just
20 redirecting it from Shieldalloy down to
21 Vineland, "Let Vineland do it."

22 MR. SIVAK: Okay. Thank you.

23 MS. ERICKSON: Regarding that
24 also, I know we're here to discuss the
25 Hudson Branch only, but we can't discuss

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1 the Hudson Branch issues if we don't
2 discuss the originating facility of
3 where the contaminants are coming from.

4 I, personally, and my husband
5 think that Alternative 4 would be the
6 wisest, most economical, and most
7 healthful decision in this process.

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MR. SIVAK: Thank you.

MS. ERICKSON: We also know many people who have died from complications of Alzheimer's in my immediate neighborhood. I don't know about the rest of town, but in my immediate neighborhood, which is just about two blocks, many people have died from complications of Alzheimer's.

My very close neighbor just died from cancer. I know other people in my immediate two-block area that have had cancer and died.

I can't imagine how you're redirecting that other guy to CDC and saying that health issues are not your concern. I mean, if health issues are not a concern, we wouldn't even be here.

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And there's residents that are surrounding this one site that need to continue to live here.

MR. SIVAK: Let me touch on that because we do care about -- obviously, we care about the health of the community and we care about the people who live here.

What I was trying to differentiate was the expertise that EPA has versus the expertise that other agencies have

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12 to address some of the concerns that
13 have been raised to us. EPA, we are not
14 a medical agency. We do not have
15 physicians. I am not a physician. We
16 cannot diagnose anything.

17 The risk assessment tool is not
18 specific enough to look at individual
19 health disease rates in different people
20 and try to figure out: Is the presence
21 of this disease associated with some
22 exposure that may have occurred in the
23 past?

24 The purpose of the human health is
25 to determine, to answer the question:

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1 what are the potential health risks,
2 these cancer risks or these noncancer
3 health risks, now and in the future if
4 no action is taken?

5 So, starting now, at day one --
6 and you may agree or disagree with this,
7 but this is what this tool is designed
8 to do -- what are the risks now and in
9 the future if no action is taken if
10 people continue to be exposed to the
11 contamination that we just spent all
12 this time collecting?

13 And if those risks, if the
14 potential for developing some health

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15 effect exceeds what Congress has said is
16 acceptable, then we clean up the site.
17 So, the concern, the very valid
18 concern, "We believe that there are
19 higher disease rates in our community
20 because of where we live relative to
21 this contamination," we do not have the
22 expertise to answer that question.
23 Other people do. People at the
24 state Department of Health, people at
25 our sister agency through CDC at ATSDR

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1 have that expertise. And we can put you
2 in touch with those folks to try to
3 figure out how to get answers to those
4 questions.

5 Does that kind of differentiate it
6 a little bit more?

7 MS. ERICKSON: Yes.

8 And I don't mean to oppose you,
9 but I totally disagree.

10 No one has never knocked on any of
11 our doors and asked us if we're ill or
12 asked if a family member has/had A, B, C
13 different health issues.

14 Nobody cares. We're just people
15 who live here. And there's risks, but
16 nobody is checking on us, the residents,
17 to see if those risks are actually
18 coming to exist in living people who are

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19 dying and filling our cemetery.
20 MR. SIVAK: What I will do, I will
21 take your information as well when we're
22 done and I will have some folks call
23 you, and you can talk to them about what
24 resources are available, who you can
25 talk to to try to get some answers to

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1 those types of questions.
2 I just can't answer those
3 questions.
4 MS. ERICKSON: Will they be in
5 touch with you all -- not you,
6 personally, but the team --
7 MR. SIVAK: Yes.
8 MS. ERICKSON: -- and let you know
9 that there are people dying and they're
10 sick and they're having to pay \$11
11 million to get people well or live
12 through it for years and years and still
13 die?
14 MR. SIVAK: The folks at our
15 office will then -- once we give them
16 your information, they will be in touch
17 with Sherrel, and she will talk to them
18 about kind of about what happened
19 tonight and what your concerns are and
20 what your concerns are, and there will
21 be some follow-up conversation.

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22 So, they will know from Sherrel
23 what the history of the site is, they
24 will talk to you about what your
25 concerns are, and then we can figure out

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1 kind of a plan on how to get back with
2 you and get you some more additional
3 information.

4 MS. ERICKSON: Okay.

5 MR. SIVAK: In addition, the folks
6 at the federal level will likely also be
7 in contact with folks at the state
8 level.

9 I keep pointing to Donna. It's
10 not her agency. It's her state, but
11 it's not her agency.

12 (Laughter)

13 MR. SIVAK: But she knows these
14 folks, she works with them a lot, and
15 she will be in touch with those guys as
16 well. So, hopefully, we can come up
17 with a little two-pronged approach to
18 help you guys get some answers to your
19 questions.

20 MS. ERICKSON: You know, I do see
21 the point in capping it so that the dust
22 isn't in the air. But the dust is in
23 the air every time it rains, every time
24 there's a windstorm.

25 Two years ago, Newfield was hit
Page 128

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1 with a derecho, and all that dust came
2 all over town and nobody even asked us
3 if we'd gotten sick.
4 So, thank you very much.
5 MR. SIVAK: Thank you.
6 (Applause)
7 MR. SIVAK: 47? 48?
8 (Laughter)
9 MS. AYALA: 14, 15, 16?
10 MR. FIOCCHI: My name is Butch
11 Fiocchi. I live on Burnt Mill Pond.
12 I would like to see it cleaned so
13 that it also enhances the properties in
14 the whole area. It used to be a
15 recreational, little fishing area for
16 kids. No longer exists.
17 I understand we're getting the dam
18 done, which is appreciated, but we still
19 feel that the dredging needs to be done.
20 I understand there's other projects, but
21 maybe if we went with the \$11 million
22 there might be something in there that
23 we could do with the pond because the
24 water is still going to dump into there.
25 So, that's a concern.

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SMC Public Meeting Transcript.txt

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MR. SIVAK: Okay.

MR. FIOCCHI: The other thing is the area you're going to cap, is there a buffer around that area?

MR. SIVAK: Yes.

The final area will be worked out in this remedial design phase and it will include an area that contains some sort of buffer as well.

MR. FIOCCHI: So, it would be more than an acre?

MR. SIVAK: We're right now estimating it at 1.3 acres.

MR. FIOCCHI: With the buffer?

MR. SIVAK: I don't know the details to that.

MR. FIOCCHI: Okay.

MR. SIVAK: Again, a lot of the specific details, like how far out will it go, will it go forty feet beyond that, that will all be worked out in our design phase.

we'll go back and collect some additional samples in that area and kind of refine it a little bit more.

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MR. FIOCCHI: That hasn't been done yet?

MR. SIVAK: We've collected some data and we identified that area based
Page 130

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5 on the data that exists. We'll go in
6 and we'll really refine that area to
7 make sure that we're getting everything
8 that we need to cover under a cap, if,
9 again, that cap is the final remedy for
10 the site.

11 MR. FIOCCHI: The other thing is
12 that will probably use more of the area.
13 Then you're going to need ways in and
14 out which will take more of it away
15 also.

16 Correct?

17 It's going to add to the usage or
18 nonusage of what you can use.

19 MR. SIVAK: Well, the
20 implementation of the cap, once the cap
21 is on there, I'm not quite sure what you
22 mean "ways in and out."

23 MR. FIOCCHI: Somebody has to get
24 to it.

25 MR. SIVAK: Right. They could

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1 walk there, I mean...

2 MR. FIOCCHI: Right.

3 But they're still not going to be
4 able to use it or put buildings on it or
5 anything.

6 Am I correct?

7 MR. SIVAK: They may be able to

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put buildings on it.

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Again, the only thing we're trying to do is stop direct contact with this material.

MR. FIOCCHI: Okay.

MR. SIVAK: So, there's a lot of different caps that we can develop that would allow us to achieve that goal.

MR. FIOCCHI: Now, you said it could be used for industrial uses.

MR. SIVAK: Yes.

MR. FIOCCHI: Are they going to be limited?

Like, are you going to be allowed to have food processes on there, anything to do with food?

MR. SIVAK: Again, we do not prescribe how a property can be used.

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We deliver it as a categorical land use.

MR. FIOCCHI: That's local zoning?

MR. SIVAK: That's up to the property owner and the municipality and other interested parties to figure that out.

MR. FIOCCHI: Okay. That's it.
Thank you. I appreciate it.

(Applause)

MS. AYALA: Seventeen?

MR. NESSEL: My name is John
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12 Nessel. I live at 108 Woodlawn Avenue
13 in Newfield.

14 Some of the things that concern me
15 is the fact that any action taken by the
16 EPA, would that affect any future court
17 decisions down the road that may be
18 addressed with the DEP and/or the NRC in
19 other areas at that site?

20 For example, if you give them
21 permission to cap this, will they be
22 able to cap other areas based on this
23 decision?

24 MR. SIVAK: I cannot speak for the
25 courts, but I do know that EPA has

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1 selected capping remedies all throughout
2 New Jersey, all throughout Region 2, and
3 throughout the country. So, selecting a
4 cap at this site is not inconsistent
5 with other remedies we've selected.

6 I don't think it would influence
7 the courts, but --

8 MR. NESSEL: But in this case,
9 there's two contaminated areas on the
10 same property.

11 will one influence the other? is
12 my question.

13 MR. SIVAK: They're two very
14 different --

SMC Public Meemetint Transcript.txt

15 MR. NESSEL: I guess it's more a
16 statement than a question, because how
17 could you answer that question?

18 Number two and three, in my
19 opinion, are out of the question.

20 Number four would be the way to go
21 in the sense that Newfield, 1.7 square
22 miles, needs ratables. And the best
23 ratable we can receive is a light
24 manufacturing.

25 It does need any schools, any

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1 school tax, it doesn't present any
2 tuition, I should say, or anything else
3 for that matter that would be very, very
4 costly to us people.

5 In my perfect little world, that
6 site becoming an industrial park would
7 be fantastic. It has two rail spurs,
8 access to two streets, it has a water
9 tower that's better than the Borough of
10 Newfield's water system, quite frankly.
11 So, that wouldn't hurt us at all. That
12 would be the way to go.

13 And I wish you would consider --
14 at one time, you stated that you can --
15 correct me if I'm wrong -- you can make
16 shieldalloy -- hold on.

17 Can you order shieldalloy to enact

18 Alternative 4?

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19 Is it within your power to do
20 that?

21 MR. SIVAK: The remedy that we
22 select in our Record of Decision is the
23 final remedy for the site.

24 MR. NESSEL: And that hasn't been
25 done, as you said.

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1 MR. SIVAK: No.

2 That will not be done until the
3 public comment period closes, we review
4 all the comments that we received both
5 from the community, from the elected
6 officials, from the state.

7 And then we memorialize all of
8 that information into the final Record
9 of Decision. We will then engage in
10 negotiations with the responsible party.
11 If they choose to not engage in those
12 negotiations, then we do have
13 enforcement tools at our authority where
14 we can order them to do the work.

15 But we don't think it will come to
16 that.

17 MR. NESSEL: So, Alternative 4
18 isn't out of the question, then.

19 MR. SIVAK: It is not out of the
20 question, and that's why we're
21 presenting it to you. We think it's an

22 SMC Public Meeeetint Transcript.txt
option.

23 MR. NESSEL: I'm just covering
24 territory to reinforce my position,
25 that's all.

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1 You have to understand that area,
2 depending where it's located in that
3 site, if nothing can be done there --
4 and I'm being told that it can -- if
5 that can't be used for anything, it
6 might raise a problem with regard to the
7 whole site, you know?

8 Once again, light manufacturing is
9 the best ratable that the town could
10 have. We really have none now. Our
11 master plan has changed and we really
12 have none, so it's in our best interest.

13 It was nice to see Vineland here
14 this evening represented by their
15 solicitor. That was a class act. It's
16 too bad that the Newfield mayor and
17 council didn't have the decency to show
18 up this evening and voice an opinion as
19 far as this is concerned.

20 MR. SIENCZENKO: That's terrible.

21 MR. NESSEL: I think it's very
22 disappointing myself.

23 I think that Vineland being
24 here -- Franklin Township, next time
25 around, if you would be kind enough to

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1 do that, notify them directly and let
2 them know because it affects their --
3 Franklin Township is all around
4 Newfield. And Vineland I think is
5 adjacent to Shieldalloy, so to speak, so
6 that would be a good thing to do.

7 You mentioned historical value.
8 what you said is it was a glass
9 producing/manufacturing company back in
10 the 1900s.

11 Can we tap into the fact of
12 possible historical value to have this
13 place cleaned up?

14 Do you understand my position?

15 Is that possible?

16 Does it have any historical value?

17 Has anybody looked into that?

18 MS. GAFFIGAN: A cultural resource
19 evaluation was done many years ago, and
20 it was determined not to be of
21 exceptional historic value.

22 MR. NESSEL: That's fine.

23 Thank you very much.

24 MR. SIVAK: But it's still
25 special.

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(Laughter and applause)

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MR. NESSEL: Health issues. In '84, when they turned around and deemed the water down to us in Burnt Mill to be contaminated, my question was, "How come the farmers can use it to water their crops with and make it airborne and then sell the crops?"

And everybody said, "well, it's okay, it's all right, it doesn't matter.

Sure enough, in the '90s, I understand, someone said, "You know what? You can't water no more with that water."

At that time also, old-timers in Newfield realized how many people had cancer; bladder cancer especially.

Talked to the DEP officials at the time, and they were going to do a cancer cluster study. It never came to fruition. Why it never happened, I don't know. It may be too late for that now because most of the people have died, I'm sorry to say.

But we really need to take a look

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at that just to appease those people who think that they're getting cancer from that, which is not necessarily so. But perhaps we can do something with DEP and
Page 138

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5 do a cancer cluster study.

6 MS. GAFFIGAN: Department of
7 Health.

8 MR. NESSEL: I know from doctors
9 that there's a map of all cancer-related
10 illnesses in the Borough of Newfield. I
11 don't have access to that. I don't even
12 know how to begin to get access to that.

13 It's something we can do to
14 alleviate some people's concerns, but,
15 more importantly, to make sure no one
16 else gets sick.

17 Thank you very much.

18 MR. SIVAK: Thank you.

19 (Applause)

20 MS. LISI: I think I'm the last
21 one, eighteen.

22 My name is Ellen Lisi. I have two
23 properties; 36 Southwest Boulevard,
24 across the street from Shieldalloy, and
25 I also live at the Burnt Mill Pond. So,

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1 I'm double impacted.

2 I'm sort of a philosopher and I
3 want to give a different perspective.

4 Anything south of Trenton is South
5 Jersey, and we are agricultural. And
6 our industry is farms. We're
7 agricultural. So, our biggest resource

8 SMC Public Meेतint Transcript.txt
is the earth and the water.

9 Earth and water is Alternative 4
10 because any other option still
11 jeopardizes earth and water.

12 And there is no industry -- the
13 only industry we've had here in this
14 area is glass and chickens. And glass
15 was because of the sand and the woods to
16 accommodate, and the chickens is
17 farming.

18 And the closest industry, you have
19 to go to Cherry Hill, Voorhees, Route
20 73, and further north. If you go
21 further south, we are heritage farms.
22 You can't change the farmland.

23 So, that's why I say if we're
24 going to do anything -- this area has
25 never changed. I've been here for over

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1 fifty years. My Newfield property has
2 been in the Lisi family since 1920.
3 That house that I own was built in 1883.
4 Newfield was made a borough in 1863.
5 So, my house is one of the original
6 houses in Newfield.

7 And the land around was farm. And
8 I remember a field of spinach being
9 decimated by the Shieldalloy factory
10 overnight because they would --

11 MR. SIENCZENKO: Release the
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SMC Public Meeeetint Transcript.txt

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steam.
MS. LISI: -- do the furnaces at night. And in the morning, I was going to pick the spinach, and it was ruined. So, I know firsthand about that earth and water is the only resource.

Thank you.

(Applause)

MS. AYALA: Any more questions?
Comments?

MS. PALADINO: Can I do a follow-up question?

Is that okay?

Linda Paladino, 205 Fawn Drive. I

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just have a follow-up question.

The Superfund, that is federally funded.

Am I correct on that?

MR. SIVAK: Yes.

MS. PALADINO: I've been sitting all night listening to very astute comments, and the \$6 million is really bothering me.

The alternative between three and four, and please excuse my vernacular, but it's almost like a no-brainer. I mean, \$6 million is a tremendous amount of money, but in government terms it's

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15 like no money. And to have some kind of
16 better guarantee, if there is any
17 guarantee -- maybe that's a poor choice
18 of words -- for future contamination, as
19 someone said from a runoff, or anything
20 else in the future, it's almost
21 inconceivable to me that we would not do
22 that for \$6 million.

23 I'm just going to close in kind of
24 a humorous -- if you can call this
25 humorous, but in the age of internet, I

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1 was sitting here and, just for
2 curiosity's sake, googled congressional
3 expenditures. I know you guys fight for
4 your money, and I'm not accusing you of
5 anything here.

6 But just to let you know, based on
7 2010 figures, just senators -- not
8 congressman, not legislators, state
9 legislators, this is federal -- get a
10 mailing expense in the budget of
11 \$368,000; a recording balance to
12 videotape something of one million nine
13 hundred and fifty-four dollars seven
14 hundred and seventy-one cents (sic);
15 stationery -- I guess this has their
16 letterhead on it -- one million
17 seventy-eight dollars four hundred
18 sixty-five cents (sic).

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19 Again, in all, personal office
20 expenses of \$422 million. If our
21 government would use less paperclips, we
22 could go for Alternative 4.
23 (Applause)
24 MS. AYALA: Any more questions or
25 comments?

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1 MR. PRICE: Robert Price, 123 Fawn
2 Drive in Newfield.

3 Quick question. Even if we do
4 Alternative 3 and they start in the
5 middle, start at the farm -- not the
6 pond, they start at the farm -- what
7 happens to that when there's groundwater
8 at the Shieldalloy facility leaching
9 back in underneath to the cap, the
10 Hudson Branch or the Cohansey aquifer
11 underneath?

12 They start working at this site,
13 why not start the problem and work our
14 way to solving it?

15 MR. SIVAK: As I understand your
16 question, it's how are we going to phase
17 in the remediation of the Hudson Branch.

18 MR. PRICE: Yes.

19 MR. SIVAK: Again, how we would
20 implement that remedy would be worked
21 into our design, but I think what you

22 SMC Public Meeeetint Transcript.txt
said is exactly what we would consider;
23 to start at the upgradient portion of
24 the site and then work our way down so
25 we don't end up with recontamination.

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1 We want to do it as efficiently as
2 possible and we don't want to
3 recontaminate anything.

4 MR. PRICE: The facility itself,
5 we're not talking about that today.
6 Can't talk about that.

7 MR. SIVAK: well, we can talk
8 about the facility, we just can't talk
9 about the slag pile, because we have
10 onsite facility soils that we're dealing
11 with as part of this remedy.

12 MR. PRICE: Isn't the groundwater
13 affecting the aquifer which is going
14 down through the Hudson Branch?

15 MR. SIVAK: We already have a
16 remedy for the groundwater. That was
17 selected in the '90s; '96. That's the
18 groundwater pump and treat. We're
19 pumping the groundwater out and we're
20 trying to get the contamination out of
21 it.

22 In addition to that, we're also
23 doing some pilot studies to try to get
24 the contamination out more quickly and
25 more efficiently. So, we're already

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1 dealing with the groundwater.

2 So, we've captured the
3 groundwater. The groundwater is not
4 migrating anywhere.

5 MR. PRICE: Similar to what you
6 guys did in Vineland and Price's Pit
7 down in Pleasantville?

8 MR. SIVAK: I don't know Price's
9 Pit, but I do know Vineland. Yes, I
10 work on that site as well.

11 MR. PRICE: It's another dumpsite.
12 My fear is contamination. If we
13 do the work on the farm, and, as one man
14 said, if we don't do anything down Burnt
15 Mill, hopefully we do, that's the end of
16 the line so far, and nothing further,
17 hopefully, has gone passed, but if you
18 start one end and work your way to the
19 other --

20 MR. SIVAK: We would start at the
21 area most upgradient and work our way
22 down.

23 We have a lot of experience in
24 dealing with sediment sites in our
25 region, and then we tend to start at the

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1 area where the source is and work our
2 way down for the exact reasons you
3 mentioned.

4 MR. PRICE: The other thing is
5 with groundwater, we don't know, one day
6 the water level might be 100 feet down,
7 next month it might be 130 feet down.

8 when the groundwater -- like, when
9 the salt comes up in the back of the bay
10 and you get groundwater contamination
11 with the salt in the back bay into the
12 fresh water, the brackish water, similar
13 to chromium and everything that might be
14 in the groundwater, will that migrate
15 back?

16 MR. SIVAK: We right now know
17 where the groundwater contamination is
18 and we're controlling it, we're
19 containing it.

20 Even though groundwater
21 fluctuates -- groundwater levels can
22 change based on precipitation events,
23 storms, whatever it might be -- we
24 monitor that all the time. So, we're
25 very confident that we're not going to

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1 have groundwater that escapes and that
2 recontaminates something.

3 we're very confident in our
4 groundwater efforts.

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5 MR. PRICE: Similar to -- it's
6 less than half-mile to our two wells?

7 MR. SIVAK: It's about a mile and
8 a half to the two wells, and they're
9 upgradient.

10 MR. PRICE: By the way the crow
11 flies or by the way of the river?

12 MR. SIVAK: By the way the crow
13 flies.

14 MR. PRICE: Across the pond.

15 MR. SIVAK: Our estimate of the
16 two wells that have been closed, is that
17 what you mean?

18 MR. PRICE: No.

19 MS. GAFFIGAN: It's about a
20 half-mile.

21 MR. SIVAK: Oh, those wells. I'm
22 sorry, I thought you meant the wells
23 that were closed. I apologize.

24 MR. PRICE: I think Option 4 is
25 what we need to do, but I think we need

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1 to start at the source.

2 MR. SIVAK: Okay.

3 MR. PRICE: Thank you.

4 MR. SIVAK: Thank you.

5 MR. FIOCCHI: One quick question.

6 Between the \$5 million and the \$11
7 million, who regulates that?

SMC Public Meeeetint Transcript.txt

8 It might have been asked before.
9 Are you telling them what to do or
10 they're choosing what course to take?
11 MR. SIVAK: EPA selects the
12 remedy. We will then work with the
13 responsible party to implement the
14 remedy. And if they choose to do that,
15 it will be implemented under our
16 oversight.
17 MR. FIOCCHI: Okay.
18 MR. SIVAK: We will always be the
19 final decision maker.
20 MR. FIOCCHI: Okay. Thank you all
21 for coming down. I appreciate it.
22 (Applause)
23 MR. SIVAK: 111?
24 (Laughter)
25

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1 MS. AYALA: If there are no more
2 questions, I want to thank everybody for
3 coming out tonight.
4 And I want to apologize for all
5 the mix-ups. But we had the meeting,
6 and we promise that going forward things
7 will be different and more organized.
8 And you have until July 28 to
9 submit comments to Sherrel. Fax them,
10 e-mail them, or just send them via the
11 post office.

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Thank you so much.
(Time noted: 10:07 p.m.)

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C E R T I F I C A T E

STATE OF NEW JERSEY)

) ss.

COUNTY OF HUDSON)

I, LINDA A. MARINO, RPR,
CCR, a Shorthand (Stenotype)
Reporter and Notary Public of the
State of New Jersey, do hereby
certify that the foregoing
transcription of the meeting held at
the time and place aforesaid is a
true and correct transcription of my
shorthand notes.

I further certify that I am

15 SMC Public Meeeetint Transcript.txt
neither counsel for nor related to
16 any party to said matter, nor in any
17 way interested in the result or
18 outcome thereof.

19 IN WITNESS WHEREOF, I have
20 hereunto set my hand this 16th day
21 of July, 2014.

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LINDA A. MARINO, RPR, CCR

RESPONSIVENESS SUMMARY

APPENDIX V-b

LETTERS AND E-MAIL SUBMITTED

Joyce + Dennis Costantino
107 Woodlawn Ave.
Newfield, NJ. 08344

July 17, 2014

Sherrel Henry, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway 20th Floor
New York, N.Y. 10007

Dear Ms. Henry,

In regards to the clean-up of Shieldalloy Metallurgical Corp, Dennis and I would think that anyone, let alone a corporation, would be responsible to clean up their own mess. To think that Shieldalloy could leave health hazard materials for the citizens of Newfield is incomprehensible!

That it has taken years for this matter to be taken care of at the expense of the health of real people is beyond words.

There is no other alternative than to do what is right and have the problem finally fixed by Shieldalloy Metallurgical Corp. by implementing Alternative #4 (Excavating Sediments and Institutional Control applied.

Your action on this matter is greatly appreciated!

Sincerely,

Joyce Costantino
Gemma Costantino SR



July 18, 2014

**BOARD OF
CHOSEN FREEHOLDERS**

**COUNTY OF GLOUCESTER
STATE OF NEW JERSEY**

**FREEHOLDER DIRECTOR
Robert M. Damminger**

Sherrel Henry, Remedial Project Manager
USEPA
290 Broadway
20th Floor
New York, New York 10007

Dear Ms. Henry:

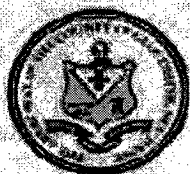
The Gloucester County Board of Chosen Freeholders has received a copy of the Superfund Proposed Plan for Operable Unit Two (OU2) at the Shieldalloy Metallurgical Corporation Superfund Site which is located in the Borough of Newfield, Gloucester County. Also, several of our staff members attended the USEPA Public Meeting on the Proposed Plan which was held in Newfield on July 9, 2014.

Based on staff's review of the Superfund Proposed Plan for the site, the Gloucester County Board of Chosen Freeholders submit the following comments:

1. After developing and screening four remedial alternatives for the facility, USEPA has identified Alternative 3 (Capping Facility Soils, Excavating Sediments, and Institutional Controls) as the Preferred Alternative.

Capping facility soils and excavated contaminated sediments from Hudson Branch is unacceptable. The Gloucester County Board of Chosen Freeholders request that all contaminated materials (soils, sediments, slag, dusts, building materials) from the site are removed and transported to an NJDEP approved offsite disposal facility.

2. The report should include a description of the stream gaging program on Hudson Branch and a discussion on the interaction between the aquifer and the stream.
3. The report should include a description of the pilot studies that are currently underway concerning groundwater contamination remediation at the site.
4. The report should include a discussion about the monitoring program for the wetlands along the Hudson Branch.
5. The report should include a discussion concerning sampling results and flow from the two outfalls. The report should also include a map of the



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www.gloucestercountynj.gov

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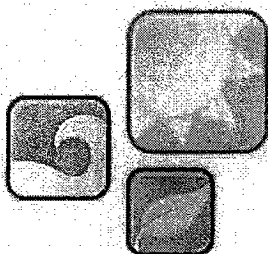
- facility's storm system. USEPA should also review the stormwater systems of new developments which are to be constructed along Catawba Avenue.
6. USEPA should sample stormwater runoff from the slag pile and evaluate potential impacts to soils, wetlands, sediments, and Hudson Branch.
 7. The report should include a chart of surface water, soils, and sediments sampling results. This section should also include a discussion on the QA-QC Plan for the project and who is responsible for conducting the monitoring programs. A map of all sampling locations should be included.
 8. As the facility has been in Newfield for many years, the Human Health Risk Assessment should also include an evaluation of human health risks to the Borough residents and other receptors.
 9. USEPA should clarify NJDEP's position on the Preferred Alternative. The report states that NJDEP is evaluating the preferred alternative and then states that NJDEP believes that the alternative will be protective of human health and the environment.
 10. The document should include a discussion concerning the Company's commitment to funding the cleanup at the facility and whether they have the financial resources available to remediate the site.
 11. The document should discuss the availability of Superfund funds for the project.
 12. The Proposed Plan should discuss permits that will be needed for the project (i.e. NJDEP, Gloucester County Soil Conservation District).
 13. The Gloucester County Board of Chosen Freeholders formally request to be kept informed of current and future USEPA and NJDEP activities and studies at the site for OU1, OU2, OU3 and the slag pile.

Once again, the USEPA Proposed Plan to cap facility soils and excavated sediments at the Shieldalloy Metallurgical Corporation Superfund Site is unacceptable to the Gloucester County Board of Chosen Freeholders and our residents. We urge USEPA and NJDEP to remediate the site in a manner that will insure the safety and well-being of our residents and also protect the environment.

The County of Gloucester appreciates the opportunity to participate in this process. Please feel free to contact me if there are any questions or comments.

Sincerely,

Robert M. Damminger, Director
Board of Chosen Freeholders

c. Heather Simmons, Freeholder Liaison
Chad M. Bruner, County Administrator
Gerald A. White, Deputy County Administrator



The Green Action Alliance
Green Solutions for America's Pollution
www.greenactionalliance.com

July 24, 2014

Sherrel Henry Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007

**PUBLIC COMMENT ON THE REMEDIAL ACTIONS
FOR THE SHIELDALLOY METALLURGICAL
CORPORATION SUPERFUND SITE IN NEWFIELD,
GLOUCESTER COUNTY, NEW JERSEY**

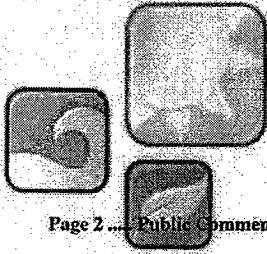
Dear Ms. Henry,

I am writing in reference to the Shieldalloy Metallurgical Corp., Superfund Site (OU2) in Newfield, Gloucester County, New Jersey. The purpose of my letter is to object to the current plans labeled as Alternate 3 which is the focus on capping facility soils, excavating sediments and institutional controls. This plan represents placing a Band-Aid on a dirty/infected cut and is an unaccepted method to the people of Newfield, the residents of both Gloucester and Cumberland Counties and a concern for residents throughout Southern New Jersey who may have been impacted by the Groundwater contamination for decades without their knowledge and possible health and safety risk to tens of thousands of New Jersey residents. Clearly this Superfund site has been a contamination source prior to the discovery of contamination emanating from this site and that contamination may have drifted far beyond the Gloucester and Cumberland county areas.

It appears that both the U.S. EPA and NJ Department of Environmental Protection have used dollars and cents to base the focus on Band-Aid repairs to contaminated sites. The "Cap and basically Forget" method is all too common as a solution to pollution and poses present and future risk to local residents. Monitoring of these sites are no answer to fully cleaning the site completely. The people of Newfield and both Gloucester and Camden Counties as well as all of South Jersey deserve better. When I say better it means the proper actions in fully cleaning up the site not catering to the polluter but providing the residents a solution that will not have them and their family members concerned about the ongoing contamination issues that may affect their lives. Your Human Exposure Assessment Risk I find plain and simple just sheer nonsense. In my 34 years in the environmental field I have seen issues where there were a number of environmental coverups and the conspiracies to cover up contamination issues by building owners as well as government agencies who are suppose to help protect the general public have been reported yet somehow are buried on someones' desk or totally disregarded which seems to me to show that your agency and the NJ DEP may play favorites as to who they target and what plan of action is provided. I am concern that you are bending over backwards for the Shieldalloy Metallurgical Corp. at the expense of the health and safety of the residents of Newfield and surrounding areas.

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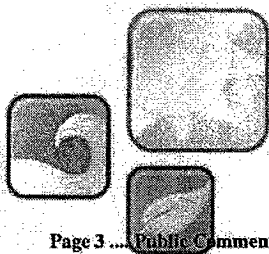
Page 2 ... Public Comment on the Shieldalloy Superfund Site in Newfield, Gloucester County, New Jersey

The fact that the Shieldalloy Site is on the Superfund List in itself indicates a risk factor to the Newfield residents and others beyond the Newfield area. The recent meeting in Newfield by the U.S. EPA and the NJ DEP appeared to me to be a side show filled with misleading statistical information and catering only to Alternative #3 the capping process. The statements made by the U.S. EPA as to seeking solution to reduce the risk to area residents is completely irresponsible and concerning. The statement that needs to be made is to eliminate the risk to area residents not reduce the risk. These residents have been contaminated upon for quite sometime and now is not the time to focus on the capping process to continue the health concerns. While the proper cleanup of the contaminated soils may be almost twice the cost of a flimsy style capping method, eliminating a source of decades of contamination is necessary at this point.

The capping process involves a 1.3 acre site on the Shieldalloy property which would be used to prevent direct contact with vanadium/chromium contaminated soils which appear to be currently an issue. The fact that as of this writing you are not sure of the type of capping material to be used or its design classification indicates that this method/alternative is a thrown together method to try and convince the residents in order to save money and assist Shieldalloy Corp. You also admit that this capping process would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure which would involve a review of site conditions to be conducted at least every five years. This shows that a capping alternative (#3) would still pose many concerns and questions not to mention probable ongoing health and environmental risk.

When I began developing a timeline of events regarding the Shieldalloy site and contamination issues it clearly defines the need to not only expedite the process involved with the superfund sites but to also provide a sound rational plan to clean up these sites not Band-Aid over them. It is a concern with the capping process to expend millions to develop, investigate and decades later have a hearing to tell the general public your solutions in a manner that still leave these sites a risk to the general population.

Would your agency at the U.S. EPA and the NJ DEP state on their respective letterheads that the capping process is a 100% safe method that will provide unlimited use of the ground, not affect air or water contamination and not result in stormwater runoff concerns? If not, then the only fair, honest and responsible action that must be taken is to select Alternative #4. Forty four years plus of contamination at Shieldalloy deserves more of a proper response then an out of site out of mind type of capping process. This type of capping solution is never a good alternative and hurts the real estate values of Newfield residents and basically gives the small community a setback to grow when such a large parcel of contaminated land which contaminated far from its property lines is allowed to bury its contaminants on site with the help of both the U.S. EPA and the NJ DEP. Would small businesses receive the same help?



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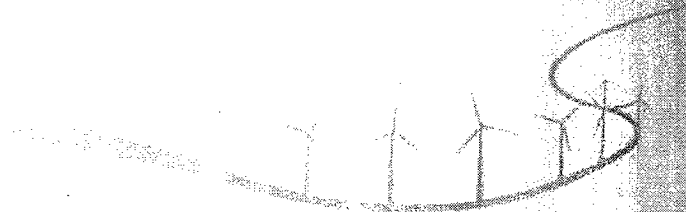
The capping process in Alternative #3 appears like a sideshow magical act ... Now you see the contaminants - now you don't see them. Unfortunately these contaminants are still there and still pose a threat to the air and water and potentially to the residents. We must stop trying to fit square blocks into round holes by forcing residents to accept misleading and risky solutions to their families. FORTY FOUR YEARS (44) of known contamination to the Newfield residents and beyond is far too long to have a one to two foot capping method to hide further contamination risk. While the general workforce may face various job hazards is it fair to exposure children to known environmental hazards?

The extent of the total contamination issues at Shieldalloy site clearly show a need for cleaning up the contamination so that it does not have the potential to continue to be a risk factor. I would hope that your decision would closely consider the children of Newfield and the surrounding areas. It is not fair to them that they suffer health concerns or risk due to just burying the contamination deeper into the ground especially since a capping process has environmental and health risk associated with it.

Thank you for taking the time to address the issues and I hope you arrive at the only solution for this pollution and that is to remove it not allow it to continue underground.

Sincerely,

Edward J. Knorr IH, CES, CMI
Chairman





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July 28, 2014

Via E-Mail

Ms. Sherrel Henry
Remedial Project Manager
Emergency and Remedial Response Division
US Environmental Protection Agency, Region 2
290 Broadway, 20th Floor
New York, NY 10007-1866

Re: TRC Environmental Corporation Comments on the OU2 Proposed Remedial Plan for the Shieldalloy Metallurgical Corporation Superfund Site

Dear Ms. Henry:

TRC Environmental Corporation ("TRC") welcomes the opportunity to submit these comments to the June 2014 Proposed Remedial Plan ("Proposed Plan") of the U.S. Environmental Protection Agency ("EPA" or "Agency") for Operable Unit 2 ("OU2") at the Shieldalloy Metallurgical Superfund ("SMC") Site in Newfield, New Jersey (the "Site"). As the party preparing the Remedial Investigation/Feasibility Study ("RI/FS") for the Site, TRC has a comprehensive and highly informed understanding of Site conditions and the OU2 remedial alternatives under consideration by EPA.

TRC has carefully evaluated the Proposed Plan and the rationale set forth in it for EPA's proposed "Preferred Alternative" (Alternative 3), which consists of excavation and offsite disposal of Hudson Branch sediments to prescribed depths in excess of the Preliminary Remediation Goals ("PRGs"), and capping of 1.3 acres containing residual metals contamination in the Eastern Storage Area at the SMC Facility.

For the reasons addressed in these comments, selection of remedial Alternative 3 is consistent with the National Contingency Plan ("NCP") under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA" or "Superfund"), is consistent with EPA policy and precedent throughout Region 2 and across the country, and, as discussed in detail in the FS and further below, Alternative 3 is that alternative which best balances the remedy selection criteria EPA is required to weigh under the NCP.

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SUMMARY

Selection of Alternative 3 is consistent with the NCP and EPA CERCLA policy and precedent, for at least the following reasons:

1. Alternative 3 best meets the requirements of the NCP remedy selection criteria that must be weighed and balanced as a whole to identify a final remedy for the Site;
2. Alternative 3 is protective of human health and the environment, and is more favorable relative to the short term effectiveness criterion;
3. Alternative 3 is a more “cost-effective” remedy as required by and defined in the NCP and relevant EPA guidance;
4. Alternative 3 is a “greener” remedial alternative when compared to Alternative 4;
5. Public sentiment identifying Alternative 4 as a preferred remedy are due to putative concerns about residually contaminated radioactive slag which cannot properly be considered here, and is at odds with longstanding EPA CERCLA Policy;
6. There is no ARAR for sediment and therefore EPA applied the appropriate PRGs; further, NJDEP regulations expressly allow for the application of site specific cleanup criteria to the areas at issue; and
7. Consideration of dredging of Burnt Mill Pond outside and beyond properly established PRGs, as part of the OU2 cleanup is inconsistent with CERCLA and the NCP.

For any and all of these reasons, EPA is correct in selecting Alternative 3 as the Preferred Alternative for OU2 and the final remedy for the Site.

DISCUSSION

1. **The Required Balancing of the NCP Remedy Selection Criteria Demonstrates That Selection of Alternative 3 is Consistent with the NCP and a Decision Otherwise Would be Arbitrary and Capricious**

As EPA is aware, the NCP dictates an analysis of remedial alternatives under consideration that “consists of an assessment of individual alternatives against each of nine evaluation criteria and *a comparative analysis that focuses upon the relative performance of each alternative against those criteria.*” 40 C.F.R. § 300.430(e)(9)(ii) (emphasis supplied). These nine criteria are:

- (i) two “threshold” criteria (overall protection of human health and the environment, and compliance with Applicable or Relevant and Appropriate Requirements



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“ARARs”) which each alternative must be evaluated against in order to be eligible for selection;

- (ii) five “primary balancing” criteria (long-term effectiveness and permanence; reduction of toxicity, mobility, or volume; short-term effectiveness; implementability; and cost); and
- (iii) two “modifying” criteria (state and community acceptance) that are to be considered in final selection of the remedy. These criteria are considered after the public comment period. TRC reserves the right to offer further comment, after the comment period, relative to these two criteria.

Id. at § 300.430(f)(1)(i).

All the above criteria “are used to select a remedy.” *Id.* See also *id.* at § 300.430(f)(ii). EPA is required to select the “*most appropriate* remedial action” for a site by “identify[ing] the alternative that *best meets the requirements in § 300.430(f)(1)(i)*,” i.e., that “best” meets the nine remedy selection criteria taken as a whole. *Id.* at § 300.430(f)(1)(ii), (f)(2) (emphasis supplied).

The administrative record for the Site, the RI/FS approved by the Agency, and EPA’s own Proposed Plan demonstrate clearly that Alternative 3 represents the alternative that provides the best balance of tradeoffs among the NCP remedy selection criteria as a whole and, therefore, should be selected as the final OU2 remedy for the Site.

EPA’s Proposed Plan itself demonstrates that Alternatives 3 and 4 are essentially equivalent when it comes to satisfying five of the nine remedy selection criteria. In that regard, the Proposed Plan states the following:

- (i) *Overall Protection of Human Health and the Environment*: “All of the alternatives except Alternative 1, would provide protection of human health and the environment”. Proposed Plan, at 14. Further, “Alternative 3 would eliminate unacceptable risks to human health and ecological receptors through a combination of capping (facility soil), excavation (Hudson Branch sediments) and institutional controls.” Clearly, Alternative 3 satisfies this criterion.
- (ii) *Compliance with ARARs*: “Alternatives 3 and 4 comply with chemical-specific soils ARARs and the location-specific wetlands and floodplains ARARs and would eliminate exposure...Alternatives 3 and 4 also comply with the surface water ARAR by removing the contaminated sediment containing the source....” Proposed Plan at 15.

More specifically, Alternative 3 complies with New Jersey law, N.J.S.A. 58:10B-12g(1), which *requires* the Department to approve a restricted use or limited use remedial action, as long as the selected remedy is protective of public health and



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the environment.” (emphasis supplied). See also The Site Remediation Reform Act (“SRRA”), N.J.S.A. § 58:10B-12g(1), which provides in pertinent part that NJDEP

may not disapprove ... remedial action so long as the selected remedial action meets the health risk standard.

In fact, a brief review of Superfund Records of Decision in New Jersey for sites with chromium or vanadium in soils or sediment indicates numerous sites where EPA implemented a remedy similar to Alternative 3. There are many additional sites in New York (also in Region 2) and across the country where similar remedies have been implemented. Superfund precedent, demonstrated at these other sites, shows that Alternative 3 is compliant with the ARAR criterion. It should also be noted that there are dozens of other State of New Jersey lead remediation sites where capping of residual chromium has been selected as a final remedy.

Alternative 3 clearly satisfies this criterion.

- (iii) *Long-Term Effectiveness and Permanence*: “Alternatives 3 and 4 offer long-term effectiveness and permanence through institutional controls as well as capping and excavating of facility soils, respectively, and excavating of Hudson Branch sediments.” Proposed Plan at 15. At the public meeting, the EPA confirmed and reinforced this point by stating, in pertinent part that “And we felt very strongly that's why capping was the better alternative for the site”. Transcript at 133.

EPA long ago – and has consistently since – concluded that appropriate caps provide adequate long-term protectiveness for low threat wastes, such as metals. See, e.g., 40 C.F.R. § 300.430(a)(1)(iii)(B) (“EPA expects to use engineering controls, such as containment, for waste that poses a relatively low long-term threat”). EPA guidance similarly concludes “For low-level threat waste found at metals-in-soil sites, the presumptive remedy is containment. *Presumptive Remedy for Metals-in-Soil Sites*, EPA, EPA 540-F-98-054, OSWER-9355.0-72FS, PB99-963301, September 1999.

Alternative 3 clearly satisfies this criterion.

- (iv) *Reduction of Toxicity, Mobility, or Volume Through Treatment*: EPA has determined, equally with respect to both Alternatives 3 and 4, that “For Alternatives 3 and 4, a treatment technology may be applied to the excavated sediments to facilitate disposal, such as dewatering, that would reduce the mobility or volume of contaminants.” Proposed Plan, at 15. As such, Alternatives 3 and 4 are identical with respect to this criterion.
- (v) *Implementability*: “The institutional controls under Alternatives 2, 3 and 4 are relatively easy to develop and administratively feasible. Design and



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implementation of capping (Alternative 3) and excavation (Alternatives 3 and 4) are administratively feasible, as no permits are required for on-site activities, although such activities would comply with substantive requirements of otherwise required permits...Alternatives 3 and 4 would require truck traffic coordination through the residential neighborhoods (traffic impacts would be greater under Alternative 4), and available landfill capacity at an off-site location. Alternative 3 and 4 can be readily implemented from an engineering standpoint and utilize commercial available products and accessible technology.” Proposed Plan at 16. Therefore, Alternatives 3 and 4 are essentially equal for this criterion.

Therefore, any reasonable evaluation of both the EPA-approved FS and the discussion in the Proposed Plan of the above-referenced criteria can only yield the conclusion that Alternative 3 is consistent with the NCP.

2. Alternative 3 is More Favorable Relative to the Short Term Effectiveness Criterion

EPA has concluded that “Alternatives 3 is more effective in the short term than Alternative 4 because it limits contact with contaminated soil to a greater extent than Alternative 4. Alternatives 3 and 4 are the same for the Hudson Branch sediments and thus have the same short-term effectiveness.” Proposed Plan at 16. EPA appropriately highlighted this point at the July 9, 2014 Public Meeting when EPA’s Mr. Sivak stated “we felt the capping, with all the other capping that’s already in place at the facility, it was in line with the way the facility is currently structured...it’s consistent with the footprint of the facility, it’s appropriate for the types of contamination that we have, it reduces the short-term implementability risk by digging it up and taking off site.”

EPA is correct in concluding that Alternative 3 is more favorable than Alternative 4 for short term effectiveness.

3. Alternative 3 is More Cost-Effective than Alternative 4

Both CERCLA and the NCP require that remedial actions be “cost-effective.” See 42 U.S.C. § 9621(a) (EPA “shall select remedial actions . . . which provide for cost-effective response” (emphasis supplied)); *id.* at § 9621(b)(1) (same); 40 C.F.R. § 300.430(f)(1)(ii)(D) (“Each remedial action selected shall be cost-effective” (emphasis supplied)); *The Role of Cost in the Superfund Remedy Selection Process*, OSWER Directive 9200.3-23FS, September 1996 (“*The Role of Cost Guidance*”), at 5 (“CERCLA and the NCP require that every remedy selected must be cost-effective” (emphasis in original)). Alternative 3 is cost effective and satisfies this requirement. Because Alternative 4 clearly is not cost-effective, its selection would be unlawful.

The NCP mandate that any final remedy be “cost-effective” is independent of the requirement that the costs of remedial alternatives be considered and weighed. In light of this “cost-effectiveness” mandate, “costs that are grossly excessive compared to the overall



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effectiveness of alternatives may be considered as one of several factors used to eliminate alternatives. *Alternatives providing effectiveness and implementability similar to that of another alternative by employing a similar method of treatment or engineering control, but at greater cost, may be eliminated*¹ at the stage that alternatives are developed and screened. 40 C.F.R. § 300.430(e)(7)(iii). See *id.* at § 300.430(e)(1).

EPA must ensure that the remedial action selected is “cost-effective.” Cost-effectiveness is determined by (i) first determining the overall effectiveness of the remedy (by evaluating long-term effectiveness and permanence, reduction of toxicity, mobility or volume through treatment, and short-term effectiveness), and (ii) then comparing overall effectiveness to cost to ensure that the remedy is cost-effective. A remedy is cost-effective if its costs are proportional to its overall effectiveness. See 40 C.F.R. § 300.430(f)(1)(ii)(D).

As discussed above, EPA’s Proposed Plan concludes that both Alternative 3 and 4 are protective of human health and the environment and are consistent with ARARs. However, the short-term effectiveness of Alternative 4 is less favorable than that of Alternative 3. The long-term effectiveness of Alternatives 3 and 4 are considered to be similar by EPA under the Proposed Plan.

Accordingly, it is impossible for Alternative 4 to be considered cost-effective because it is two times more costly than Alternative 3 without providing greater overall effectiveness (i.e., its costs are not proportional to its overall benefits or effectiveness).¹ For EPA to conclude otherwise would run counter to the evidence before the Agency in the administrative record and therefore would be arbitrary and capricious.² Moreover, because Alternative 4 is significantly more costly, EPA would have to provide an exceptionally strong basis to support selection of Alternative 4 over Alternative 3, which it will be unable to do. See 40 C.F.R. § 300.430(e)(7)(iii).

EPA’s guidance on the role of cost in selection of CERCLA remedial actions strongly supports this conclusion. The Agency has determined that “[c]ost is a central factor in all Superfund remedy selection decisions.” *The Role of Cost Guidance*, at 1.³ In

¹ See 40 C.F.R. § 300.430(f)(4) (requiring an assessment of “the best balance of tradeoffs”); *Pub. Citizen, Inc. v. Mineta*, 340 F.3d 39, 55-61 (2d Cir. 2003) (failure of agency to weigh costs and benefits of alternatives, factor in relative advantages and disadvantages of each, and explain why costs were worth the benefits constituted arbitrary and capricious action).

² See *State Farm; Islander E. Pipeline Co. v. Conn. Dept. of Envtl. Prot.*, 482 F.3d 79, 95-105 (2d Cir. 2006) (“*Islander E. Pipeline Co.*”) (failure to adequately examine the relevant record evidence and articulate a rational connection between the facts in the record and the bases for an agency’s decision is arbitrary and capricious).

³ In *The Role of Cost Guidance*, which is intended to clarify “the role of cost as established by existing law, regulation, and policy,” the Agency made clear that the



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fact, the cost of remedies is a “co-equal mandate” under CERCLA with the statute’s emphasis on remedies that maintain protectiveness over time. *Id.* at 2. Accordingly, EPA’s cost guidance states that “large sums of money should not be spent” actively managing low level threat wastes that can be reliably contained onsite. See *id.* at 4. In addition, “in practice, decisions typically will turn on the [remedy selection] criteria that distinguish the different cleanup options most.” *Id.* at 5.

The proper application of that guidance is exemplified in EPA’s June 2014 OU2 Proposed Plan and the selection of Alternative 3 as the Proposed Alternative.

4. Alternative 3 is a “Greener” Remedial Alternative When Compared to Alternative 4

The Proposed Plan does not mention the issue of sustainable (or green) remediation; however, EPA Region 2 places significant emphasis on its “Clean & Green” remediation policy, which was established in March 2009 to ensure consideration of environmental impacts of remediation activities by seeking to employ sustainable practices.⁴ The objectives of that policy applies to all Superfund cleanups and which Region 2 has referred to as the “touchstone” for its remedial actions.

However, the OU2 FS appropriately ranked the alternatives relative to “green remediation” and found that Alternative 3 provides the most sustainable and green remedial alternative. Thus, in addition to being the remedy that best achieves and complies with the requirements of the NCP, the selection of Alternative 3 best comports with EPA’s green remediation objectives.

“consistent application of existing national policy and guidance will result in the selection of cost-effective remedies.” *Id.* at 1, 2 (emphasis supplied). As such, this guidance should be accorded considerable weight by Region 2 in its final remedial decision for the Site.

⁴ See also *Superfund Green Remediation Strategy*, EPA, OSWER and Office of Superfund Remediation and Technology Innovation, September 2010 (calling for incorporation of green remediation factors as part of remedy evaluations starting in fiscal year 2010 and including pursuit of ways to reduce use of energy and minimize GHG emissions). Notably, EPA has concluded that “[g]reen remediation aligns with goals and processes outlined in CERCLA . . . as well as the NCP . . .,” including “remedy selection considerations such as ‘the nine criteria’ to evaluate alternatives.” *Id.* at 3. As such, green remediation principles are an important aspect of the problem to be considered by EPA in selecting a final remedy.



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5. Public Sentiment Identifying Alternative 4 as a Preferred Remedy are Due to Putative Concerns about Residual Radioactive Slag Material and is at Odds with Longstanding EPA CERCLA Policy

Public sentiment is clearly against SMC and the SMC Site. The closure of SMC operations marked the departure of the largest employer and tax payer in Newfield. During the July 9, 2014 Public Meeting, the source of the negative environmental public sentiment was illustrated to be the slag pile. For example, even though EPA announced on several occasions that the slag pile was not to be discussed or addressed during the Public Meeting, the slag pile (and its various references by the public such as “elephant”, “tiger”, “hill”, “radiation”, “restricted area”, etc.) was referenced 51 times, whereas chromium, the principle contaminant for OU2, was mentioned only 36 (and most of those chromium references were made by the EPA). NJDEP also delivered a statement concerning pending litigation involving jurisdictional issues relating to the slag pile cleanup.

It is imperative to note that OU2 is separate and distinct from the slag pile (and OU3 perchlorate, all media), physically, chemically, and jurisdictionally. The selection of the remedial alternative must apply only to OU2, consistent with the 9 NCP evaluation criteria, and consistent with Superfund protocol, precedent, and procedure. The EPA must not allow public concerns about the slag pile to affect OU2 remedial decisions. Any OU2 decisions that incorporate or afford any weight to public interest or concerns about the slag pile would render the Superfund process for the site procedurally meaningless and defective.

The EPA can certainly urge the agencies asserting jurisdiction (NJDEP, NRC) over the cleanup to improve their public information program, or to advance the slag pile cleanup, but EPA cannot properly allow the slag pile issues, or sentiment related thereto, to apply at all to OU2.

6. There is No ARAR for Sediment and Therefore EPA Applied the Appropriate PRGs; Further, NJDEP Regulations Expressly Allow for the Application of Site Specific Cleanup Criteria to the Areas at Issue

In his testimony at the Public Meeting held on July 9, 2014, Richard Tonetta, the Solicitor for the City of Vineland asserted that cleanup at parks “...has to go to a residential quality; not industrial quality”. Transcript at 83-84. Mr. Tonetta’s testimony was referring to Burnt Mill Pond, a recreational area owned by the City of Vineland. That pond is downstream of the Hudson Branch, an area where sediment is being remediated as part of the site remedy to address ecological concerns. Mr. Tonetta was asserting that the NJDEP residential soil remediation standards should be applied as an ARAR for contamination in pond sediment.

Mr. Tonetta’s statement is not supported as a matter of law or regulation.



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First, as noted at the hearing, the media at issue is sediment, not soil. The NJDEP does not have adopted cleanup standards for sediment. See N.J.A.C. 7:26D. This fact was noted at the public hearing by EPA "There are no state ARARs for sediments". Transcript at 111.

Second, even were cleanup standards to exist for sediment, and they do not, NJDEP regulations also recognize that it is appropriate to develop alternative remediation standards for a site that is being used for recreational purposes. As noted in Appendix D to the NJDEP remediation standards:

An alternative remediation standard may be based on use of the site for recreational purposes. Recreational purposes are site-specific uses that do not reflect either a residential or nonresidential land use scenario. Alternative standards may be based on site-specific land use scenarios that effect the amount time that people are likely to spend at a site that is designated for recreational use. There are two basic types of recreational land use, active and passive, that may be considered. Examples of active recreational land use are sports playing fields and playgrounds. Examples of passive recreational land use are walking or bike trails. The approval of an alternative remediation standard for recreational land use will be contingent on the use of proper institutional controls to ensure the continued use of the site for the proposed recreational [use].⁵

The applicable regulatory and land use scenario show that the process EPA followed in this case, using a risk assessment taking into account the recreational use of the land as a basis to determine the appropriate remediation standard for sediment, is wholly consistent with NJDEP regulations. Moreover, because the site was acquired with Green Acres money and according to Mr. Tonetta is on the Open Space Inventory, it is subject to institutional controls requiring that it be maintained for a recreational use.

NJDEP Green Acres rules also do not require remediation to a specific standard. Pursuant to N.J.A.C. 7:36-8.2, only requires that any contaminated areas on a potential Green Acres site be "addressed to the Department's satisfaction". As the lead agency charged with oversight of the cleanup, EPA has unequivocally established that the proposed remediation is consistent with Superfund requirements and is protective of human health and the environment. Additionally, as noted above, NJDEP can be satisfied with the selected remedy which is based upon site specific remediation standards supported by a conservative risk assessment, both of which take into account the recreational use of the site.

⁵ It should be noted that Mr. Tonetta confirmed that the reasonably anticipated use of the site both now, and in the future is recreational. Burnt Mill Pond "...is a green acres park...This park is also, just so everyone is aware, part of the state of New Jersey Recreational and Open Space Inventory."



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For these reasons, and contrary to any statements made at the Public Meeting to the contrary, the proposed remedy as it relates to Burnt Mill Pond is fully consistent with New Jersey regulatory requirements.

7. Consideration of Dredging of Burnt Mill Pond, Outside and Beyond Properly Established PRGs as Part of the OU2 Cleanup is Inconsistent with CERCLA and the NCP

The EPA-approved OU2 Risk Assessment, which was very conservatively calculated, studied the risk of contaminants allegedly attributable to the Site in Burnt Mill Pond and determined that no risk above EPA criteria exists for either ecological or human receptors. RI at 78. This risk analysis included the very conservative assumption that all chromium is in the form of hexavalent chromium (which it is not), in order to ensure results that are extremely safe. Because hexavalent chromium is not absorbed through human skin, the potential human health risk associated with hexavalent chromium is via a pathway of incidental ingestion of sediments. Specifically, the approved risk assessment assumed a human recreational exposure at Burn Mill Pond 52 days per year (2 days a week in the summer, 1 day a week in the spring, fall, and winter), which yielded a risk of 2×10^{-5} , well within EPA's defined acceptable risk range of 10^{-4} to 10^{-6} . Pursuant to Superfund procedure and practice, Burnt Mill Pond sediment remediation cannot be considered because no elevated risk exists.

In order to understand the sensitivity of the calculations, more conservative recreational exposure scenarios were studied by TRC's risk assessors, following the July 9, 2014 Public Meeting. More specifically, TRC evaluated an even greater/more conservative human recreational exposure assumption of 350 days per year, leading to a calculated risk of 9×10^{-5} , still within the EPA's "safe range" (this evaluation also assumed that all chromium persists in its hexavalent elemental form). Thus, this sensitivity analysis shows that, even under the most extremely conservative assumptions, there is no unacceptable human health risk at Burnt Mill Pond.⁶

There were concerns expressed during the Public Meeting because the Proposed Plan used the term "recreational/trespasser" to describe the exposure scenario. EPA uses this term because portions of Burnt Mill Pond are accessible only from private land; so some exposures considered would be by "trespassers". However, the EPA appropriately indicated at the Public Meeting that "Perhaps it may be a better plan to not focus so much on the title of recreational/trespasser "...because reasonable (in fact conservative) calculations of risk indicated that there is no appreciable risk for recreational scenarios." Transcript at 110.

⁶ At the July 9th Public Meeting, one of the presenters raised a concern over EPA's use of the term "Trespasser" to intimate that recreational users of the Burnt Mill Pond area would be exposed to greater than allowable contaminant levels from a risk perspective. No such issue exists. Whether defined as a "Recreational Visitor" or Trespasser, the exposure of inhabitants to Site contaminants is well within acceptable levels of risk pursuant to Superfund.



Ms. Sherrel Henry
July 28, 2014
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Vineland indicated at the July 9th Public Meeting that they have received approximately \$1 million of NJDEP funds to repair Burnt Mill Dam, and refill Burnt Mill Pond, returning the Pond to the conditions studied in the RI/FS.

Vineland reportedly dredges Burnt Mill Pond approximately every 5 years to reduce sedimentation. Based on available information, the last maintenance dredging was 2006 (following the cessation of manufacturing operations at the SMC facility). Vineland determined, in their 2006 study of Burnt Mill Pond to support the dredging project, included as Appendix I, that no contamination was present there. Unlike the exhaustive data quality QA/QC required for the RI/FS data collected for Superfund, the sample location, depth, collection and analysis methods, and data validation is not included in the Vineland report. Of course, the RI/FS and Superfund process similarly found no risk.

It is critical to note that Burnt Mill *Branch* contributes flow from an area two (2) times larger than from Hudson Branch, based on an analysis of the watershed topography. This indicates that Burnt Mill *Branch* contributes the majority of flow of sediments and water to Burnt Mill Pond. The RI determined that Burnt Mill Branch sediments contained copper, manganese, mercury, and nickel, above the most stringent screening criteria. The RI also determined that Burnt Mill Pond sediments contained copper, manganese, mercury, and nickel above the most stringent screening criteria. Therefore, the metals in sediments in Burnt Mill Pond are primarily related to background, non-SMC related sources.

Review of historical topographic maps indicates that the 1946 version of the USGS map calls what is now Burnt Mill Branch, Manaway Branch. Further in 1946, Burnt Mill Pond did not exist. Burnt Mill Pond is first seen in the 1953 version of the USGS map. Burnt Mill Pond was named for an industrial mill that operated at the location of the current pond. Based on the stream naming in the historical USGS maps, it is possible that the Mill may have existed up to sometime between 1946 and 1953. The footprint of the industrial operations, and residual contaminants from the industrial operations are not known. Some residences were built on top of land likely used historically for industrial purposes. To TRC's knowledge, the contamination of the land and pond from this industrial activity has not been studied. The OU2 RI/FS process or resultant selected remedy cannot properly be used to study nor cleanup contamination off-Site or from non-SMC sources. Fortunately, following the robust RI/FS process, no risk was identified with any metals in Burnt Mill Pond.

The fate and transport analyses in the RI/FS determined that ponds, such as Burnt Mill Pond, naturally create sediment deposition (as water slows, sediments deposit out of suspension). This fact belies Vineland's concern that chromium moved up the pond slopes, versus settling downward. It is further noted that NJDEP does not have promulgated residential (or industrial) standards for chromium, so Superfund cannot lawfully apply such standards as ARARs. Similarly, metals concentrations up the banks of Hudson Branch are present at lower concentrations than at settling points in Hudson Branch. Additionally, as



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articulated above, many metals on the banks of Hudson Branch are present at background concentrations. Superfund cannot require cleanup of background conditions unrelated to a release of hazardous substances.⁷

CONCLUSION

For reasons cited above, the selection of Alternative 3 as EPA's Preferred Alternative is consistent with CERCLA and the NCP, supported by the administrative record, and is consistent with relevant and applicable CERCLA remediation guidance and precedent. The administrative record, including the FS for the Site, clearly demonstrates that Alternative 3 is the remedial alternative that provides the best balance of the nine remedy selection criteria and fulfills the CERCLA requirement for cost-effectiveness.

TRC requests that EPA give careful consideration to these comments and include them, together with the Appendix attached hereto, in the administrative record for the Site. Any questions that EPA may have regarding these comments, and any request for further information, may be directed to the undersigned.

Respectfully submitted,

TRC ENVIRONMENTAL CORP.



Marc Faecher
Senior Vice President

cc: Michael Sivak, Section Chief – New Jersey Remediation Division, EPA Region 2
Patrick J. Hansen, P.E., Vice President TRC
(Both of the above w/Attachments via Email only)

Attachments:

Appendix I Vineland Engineer's Letter to EPA dated June 6, 2006

⁷ The request of Vineland to dredge Burnt Mill Pond sediments seems to be based on a desire to use Superfund dollars to perform routine maintenance dredging to enhance recreational value. EPA cannot allow the use of Superfund related monies to fund unrelated maintenance projects.



APPENDIX I
VINELAND'S LETTER

Pennoni

PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

June 6, 2006

CVIN 0601

David J. Battistini, P.E., L.S., P.P.
Engineering Department, City Engineer
640 E. Wood Street,
Post Office Box 1508
Vineland, New Jersey 08210

**RE: Burnt Mill Pond
Dredging Project
City of Vineland, New Jersey**

Dear Mr. Battistini:

Pennoni Associates Inc. ("Pennoni") is pleased to present this letter report, which includes our findings, documentation to support analysis, opinion and conclusions. Please find the attached tables and a copy of the laboratory report for your reference.

Pennoni conducted sediment core sampling activities on April 14, 2006 in accordance with the Pennoni's Sediment Sampling and Analysis Plan dated April, 2006. Sample locations were selected based upon a grid design developed from site design plans and are included as Attachment A. The soil types encountered were logged for each boring location and soil boring logs are included as Attachment B. Site photos are provided as Attachment C.

Each boring was advanced to approximately two (2) feet below the bottom grade of the pond using a manual core sampler. Samples were collected by placing a three-foot long by 3/4-inch diameter metal tube into the bottom surface of the pond and driving it down using a 3-lb hammer. Samples were designated as SED-1 through SED-5. Each core of material was composited prior to sampling. Samples SED-4 and SED-5 were individually composited for grain size and Total Organic Carbon ("TOC"). In addition, samples SED-4 and SED-5 were composited together (Comp1-4/5). The samples were collected in laboratory prepared glassware, recorded on a Chain of Custody form and immediately transferred into a cooler kept at 4 degrees Celsius. The samples were transported via a courier to Severn Trent Laboratories, Inc. ("STL") of Edison, New Jersey, a New Jersey Department of Environmental Protection ("NJDEP") certified laboratory to be analyzed. Sampling analysis included grain size, percent moisture, Total Organic Content ("TOC"), Semi-volatile Organic Compounds ("BNs"), Priority Pollutant Metals ("PP Metals"), Priority Pollutant Pesticides ("PP Pest"), and Polychlorinated Biphenyls ("PCBs").

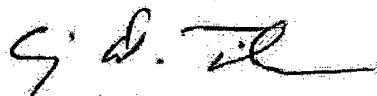
A summary of the analytical results are provided as Table 1 in Attachment D. A copy of the analytical report from STL Laboratories, Inc. is included as Attachment E.

Based upon the results of this investigation, no exceedances of the Non Residential Direct Contact Soil Cleanup Criteria ("NRDCSCC") or the Residential Direct Contact Soil Cleanup Criteria ("RDCSCC") were present for any of the samples analyzed. Based on these results, the dredged soil should fulfill the requirements for proper disposal at most certified facilities. Pennoni recommends that the information provided in these results be submitted to a disposal facility to determine if the proper requirements have been met.

If you should have any questions, please contact this office at (856) 547-0505.

Very truly yours,

PENNONI ASSOCIATES INC.



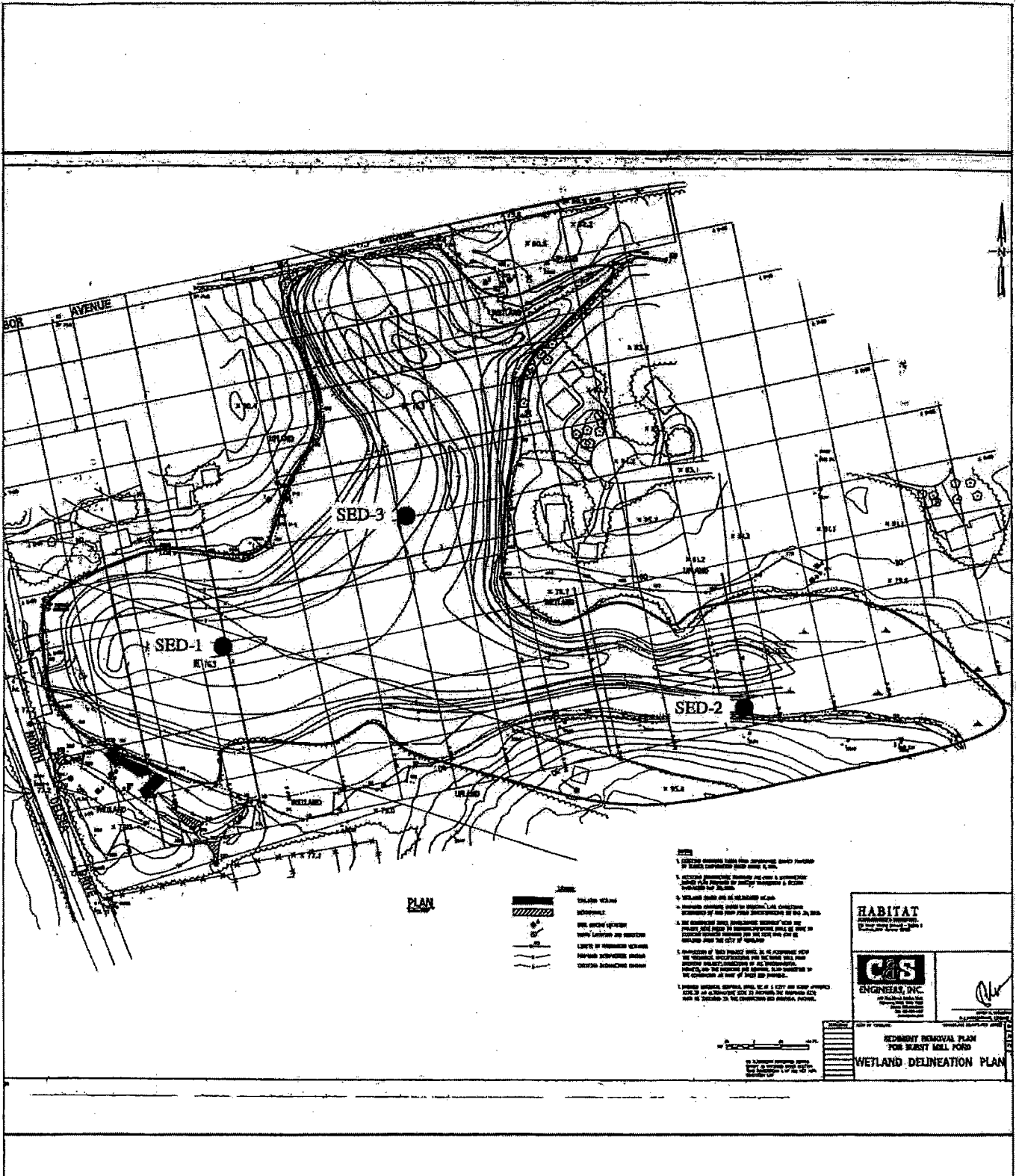
Craig D. Fisher
Graduate Environmental Scientist





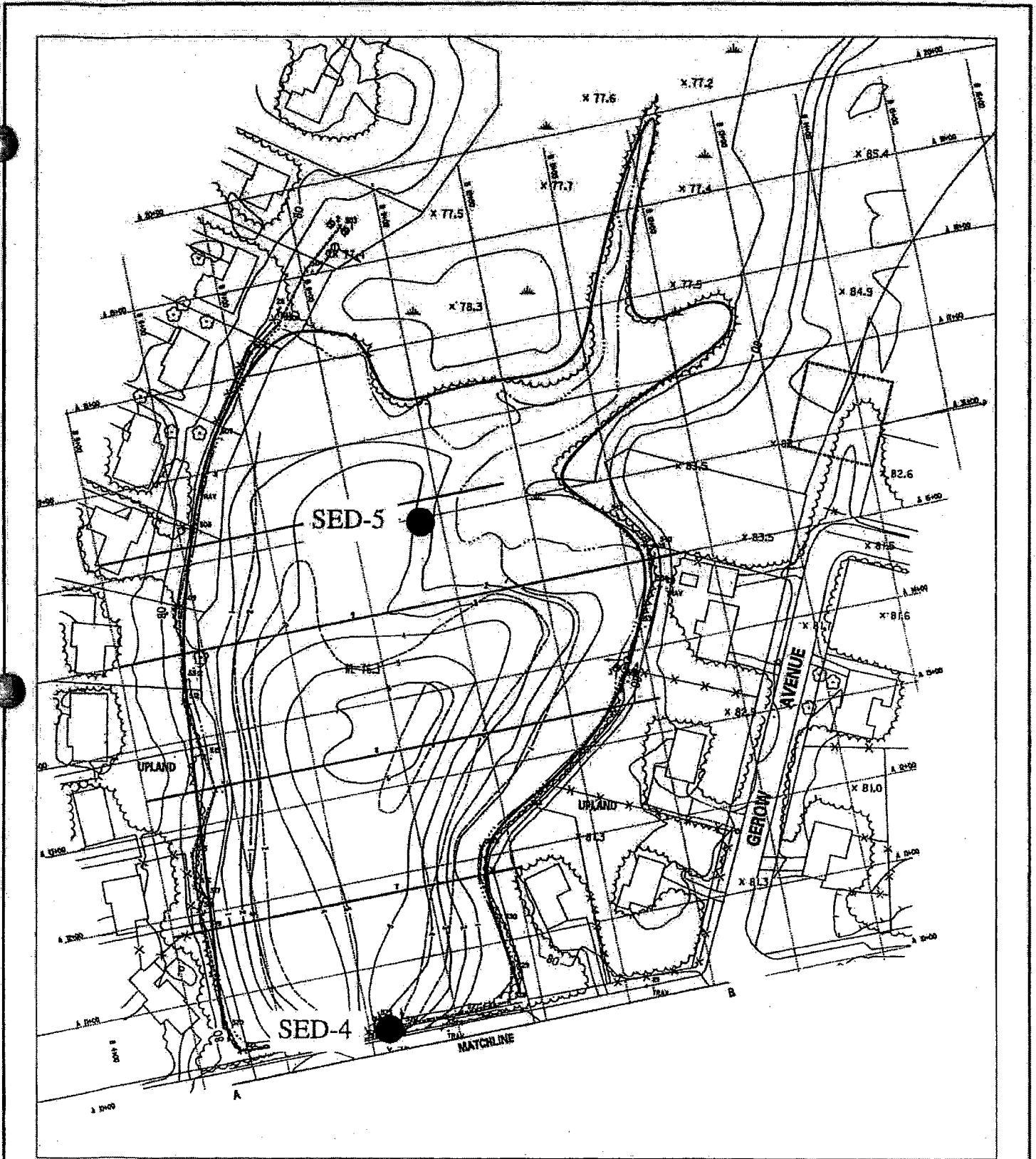
Chris A. Purvis
Environmental Division Manager


Attachments

M:\PROJECTS\Ccvin (City of Vineland)\0601 (Burnt Mill Pond)\summary letter.doc



 PENNONI ASSOCIATES INC. 515 GROVE STREET HADDON HEIGHTS, NEW JERSEY 08035	DREDGE SAMPLING AND ANALYSIS BURNT MILL POND GEROW AVE AND NORTH DELSEA DRIVE VINELAND, NEW JERSEY 08210		
	Job No. CVIN 0601	Scale: N.T.S.	



 PENNONI ASSOCIATES INC.
515 GROVE STREET
HADDON HEIGHTS, NEW JERSEY 08035

Job No. CVIN 0601

DREDGE SAMPLING AND ANALYSIS
BURNT MILL POND
GEROW AVENUE AND NORTH DELSEA DRIVE
VINELAND, NEW JERSEY 08210

Scale: N.T.S.

SAMPLE LOCATION PLAN- B

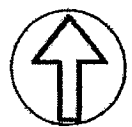


Table 1 (Continued)
Burnt Mill Pond
Delsea Drive
City of Vineland, New Jersey
Sediment Sampling Analysis

SAMPLE ID	SED-1	SED-2	SED-3	COMP-1 #5	NJDEP RDCSCC	NJDEP IGWSEC
SAMPLE TYPE	GRAB	GRAB	GRAB	GRAB		
SAMPLE MATRIX	SOIL	SOIL	SOIL	SOIL		
DATE COLLECTED	4/14/2006	4/14/2006	4/14/2006	4/14/2006		
CONCENTRATION	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Metals						
Aluminum	2,320	1,100	616	2,300	NS	NS
Antimony	U(3.40)	U(1.30)	U(1.30)	U(2.30)	14	NS
Arsenic	U(3.10)	U(1.20)	U(1.20)	U(2.10)	20	NS
Barium	96.9 B	20.6 B	38.9 B	94.4	700	NS
Beryllium	0.52 B	0.19 B	0.20 B	0.67 B	2	NS
Cadmium	U(0.35)	U(0.13)	U(0.14)	0.35 B	39	NS
Calcium	1040 B	585 B	633 B	1,070 B	NS	NS
Chromium	68.20	70.50	20.60	3.0 B	240	NS
Cobalt	4.80 B	U(0.94)	2.6 B	17.1 B	NS	NS
Copper	4.20 B	1.50 B	1.1 B	3.5 B	600	NS
Iron	1,760	290	608	2,010	NS	NS
Lead	14.50	2.80	3.0	17.1	400	NS
Magnesium	328 B	159 B	115 B	277 B	NS	NS
Manganese	122	25	66	167	NS	NS
Mercury	0.14	0.03 B	0.04 B	0.32	14	NS
Nickel	5.90 B	1.90 B	1.90 B	7.6 B	250	NS
Potassium	141 B	36.1 B	44.2 B	88.0 B	NS	NS
Selenium	U(3.30)	U(1.30)	U(1.30)	U(2.20)	63	NS
Silver	U(0.83)	U(0.32)	U(0.33)	U(0.56)	110	NS
Sodium	319 B	109 B	U(98.5)	U(167)	NS	NS
Thallium	U(1.70)	U(1.30)	U(1.30)	U(1.10)	2	NS
Vanadium	18.0 B	16.9	6.0 B	5.10 B	370	NS
Zinc	15.9 B	5.0 B	5.7 B	32.6	1,500	NS

RDCSCC-NJDEP Residential Direct Contact Soil Cleanup Criteria, dated May 12, 1999.

IGWSEC-NJDEP Impact to Groundwater Soil Cleanup Criteria, dated May 12, 1999.

Bold and highlighted entries indicate concentrations which exceed the NJ RDCSCC

B - Reported value is less than the Reporting Limit but greater than the Instrument Detection Limit.

U-Compound was not detected at or above the laboratory method detection limit. MDLs are given in parentheses.

NS- No NJDEP SCC

HIGHLIGHTED and BOLD entries indicate an exceedence of the most stringent NJDEP SCC.

Table 1
Burnt Mill Pond
Delsea Drive
City of Vineland, New Jersey
Sediment Sampling Analysis

SAMPLE ID	SED-1	SED-2	SED-3	COMP-1/2	NJDEP RDGSCC	NJDEP IGWSEC
SAMPLE TYPE	GRAB	GRAB	GRAB	GRAB		
SAMPLE MATRIX	SOIL	SOIL	SOIL	SOIL		
DATE COLLECTED	4/13/2006	4/13/2006	4/13/2006	4/13/2006		
CONCENTRATION	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Semi-Volatile Organic Compounds						
1,2,4-Trichlorobenzene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	68	100
1,2-Dichlorobenzene	U(12)	U(0.45)	U(0.45)	U(0.77)	5,100	50
1,3-Dichlorobenzene	U(12)	U(0.45)	U(0.45)	U(0.77)	5,100	100
1,4-Dichlorobenzene	U(12)	U(0.45)	U(0.45)	U(0.77)	570	100
2,4-Dinitrotoluene	U(2.30)	U(0.089)	U(0.091)	U(0.15)	1	10
2,6-Dinitrotoluene	U(2.30)	U(0.089)	U(0.091)	U(0.15)	1	10
2-Chloronaphthalene	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
2-Methylnaphthalene	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
2-Nitroaniline	U(23)	U(0.89)	U(0.91)	U(1.50)	NS	NS
3,3'-Dichlorobenzidine	U(23)	U(0.89)	U(0.91)	U(1.50)	2	100
3-Nitroaniline	U(23)	U(0.89)	U(0.91)	U(1.50)	NS	NS
4-Bromophenyl-phenylether	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
4-Chloroaniline	U(12)	U(0.45)	U(0.45)	U(0.77)	230	NS
4-Chlorophenyl-phenylether	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
4-Nitroaniline	U(23)	U(0.89)	U(0.91)	U(1.50)	NS	NS
Acenaphthene	U(12)	U(0.45)	U(0.45)	U(0.77)	3,400	100
Acenaphthylene	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
Anthracene	U(12)	U(0.45)	U(0.45)	U(0.77)	10,000	100
Benzo(a)anthracene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.9	500
Benzo(a)pyrene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.66	100
Benzo(b)fluoranthene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.9	50
Benzo(g,h,i)perylene	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
Benzo(k)fluoranthene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.9	500
bis(2-Chloroethoxy)methane	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
bis(2-Chloroethyl)ether	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.66	10
bis(2-chloroisopropyl)ether	U(12)	U(0.45)	U(0.45)	U(0.77)	2,300	10
bis(2-Ethylhexyl)phthalate	U(12)	0.22 J	U(0.45)	U(0.77)	49	100
Butylbenzylphthalate	U(12)	U(0.45)	U(0.45)	U(0.77)	1,100	100
Carbazole	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
Chrysene	U(12)	U(0.45)	U(0.45)	0.016 J	9	500
Dibenz(a,h)anthracene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.66	100
Dibenzofuran	U(12)	U(0.45)	U(0.45)	U(0.77)	NS	NS
Diethylphthalate	U(12)	U(0.45)	U(0.45)	U(0.77)	10,000	50
Dimethylphthalate	U(12)	U(0.45)	U(0.45)	U(0.77)	10,000	50
Di-n-butylphthalate	U(12)	U(0.45)	U(0.45)	U(0.77)	5,700	100
Di-n-octylphthalate	U(12)	U(0.45)	U(0.45)	U(0.77)	1,100	100
Fluoranthene	U(12)	U(0.45)	U(0.45)	U(0.77)	2,300	100
Fluorene	U(12)	U(0.45)	U(0.45)	U(0.77)	2,300	100
Hexachlorobenzene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.66	100
Hexachlorobutadiene	U(2.30)	U(0.089)	U(0.091)	U(0.15)	1	100
Hexachlorocyclopentadiene	U(12)	U(0.45)	U(0.45)	U(0.77)	400	100
Hexachloroethane	U(1.20)	U(0.045)	U(0.045)	U(0.077)	6	100
Indeno(1,2,3-cd)pyrene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.9	500
Isophorone	U(12)	U(0.45)	U(0.45)	U(0.77)	1,100	50

SAMPLE ID	SED-1	SED-2	SED-3	COMP-146	NJDEP RDCSCC	NJDEP IGWSCC
SAMPLE TYPE	GRAB	GRAB	GRAB	GRAB		
SAMPLE MEDIA	SOIL	SOIL	SOIL	SOIL		
DATE COLLECTED	4/14/2006	4/14/2006	4/14/2006	4/14/2006		
CONCENTRATION	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Naphthalene	U(12)	U(0.45)	U(0.45)	U(0.77)	230	100
Nitrobenzene	U(1.20)	U(0.045)	U(0.045)	U(0.077)	28	10
N-Nitroso-di-n-propylamine	U(1.20)	U(0.045)	U(0.045)	U(0.077)	0.66	10
N-Nitrosodiphenylamine	U(12)	U(0.45)	U(0.45)	U(0.77)	140	100
Phenanthrene	U(12)	U(0.45)	U(0.45)	0.022 J	NS	NS
Pyrene	U(12)	U(0.45)	U(0.45)	0.032 J	NS	NS
Tentatively Identified Compounds	238.4	18.37	14.51	84.2	NS	NS

RDCSCC-NJDEP Residential Direct contact Soil Cleanup Criteria, dated May 12, 1999.

IGWSCC-NJDEP Impact to Groundwater Soil Cleanup Criteria, dated May 12, 1999.

U-Compound was not detected at or above the laboratory method detection limit. MDLs are given in parentheses.

J- The result is less than the quantitation limit but greater than zero; the concentration is an approximate value.

NS- No NJDEP SCC.

HIGHLIGHTED and BOLD entries indicate an exceedence of the most stringent NJDEP SCC.

Table 1 (Continued)
Burnt Mill Pond
Delsea Drive
City of Vineland, New Jersey
Sediment Sampling Analysis

SAMPLE ID	SED-1	SED-2	SED-3	COMP 1-4/5	NJDEP RDCSCC	NJDEP IGWSCC
SAMPLE TYPE	GRAB	GRAB	GRAB	GRAB		
SAMPLE MATRIX	SOIL	SOIL	SOIL	SOIL		
DATE COLLECTED	4/14/2006	4/14/2006	4/14/2006	4/14/2006		
CONCENTRATION	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
PCBs						
Aroclor-1016	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1221	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1232	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1242	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1248	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1254	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1260	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1262	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Aroclor-1268	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.49	NS
Pesticides						
4,4'-DDD	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	3	50
4,4'-DDE	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	2	50
4,4'-DDT	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	2	500
Aldrin	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.040	50
alpha-Hexachlorobenzene	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.66	100
beta-Hexachlorobenzene	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.66	100
Chlordane	U(0.23)	U(0.09)	U(0.091)	U(0.16)	NS	NS
delta-Hexachlorobenzene	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.66	100
Dieldrin	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.042	50
Endosulfan I	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	340	50
Endosulfan II	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	340	50
Endosulfan sulfate	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	NS	NS
Endrin	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	17	50
Endrin aldehyde	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	NS	NS
Endrin ketone	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	NS	NS
Lindane	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.52	50
Heptachlor	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	0.15	50
Heptachlor epoxide	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	NS	NS
Methoxychlor	U(0.023)	U(0.009)	U(0.0091)	U(0.016)	280	50
Toxaphene	U(0.23)	U(0.09)	U(0.091)	U(0.16)	0.10	50
General Chemistry						
Total Organic Carbon	93,300	36,600	35,800	52,300	NS	NS

RDCSCC-NJDEP Residential Direct contact Soil Cleanup Criteria, dated May 12, 1999.

IGWSCC-NJDEP Impact to Groundwater Soil Cleanup Criteria, dated May 12, 1999.

U-Compound was not detected at or above the laboratory method detection limit. MDLs are given in parentheses.

NS- No NJDEP SCC

HIGHLIGHTED and BOLD entries indicate an exceedence of the most stringent NJDEP SCC.

APPENDIX B

APPENDIX B

REMEDIAL ACTION

STATEMENT OF WORK

OPERABLE UNIT 1 and OPERABLE UNIT 2

SHIELDALLOY METALLURGICAL CORPORATION SUPERFUND SITE

Borough of Newfield, Gloucester/Cumberland Counties, State of New Jersey

EPA Region II

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1. INTRODUCTION

This Statement of Work (SOW) is incorporated into the Consent Decree (CD) for the implementation of the remedial actions for Operable Unit 1 (OU1) and Operable Unit 2 (OU2) for the Shieldalloy Metallurgical Corporation Superfund Site (the site) and is an integral and enforceable part of the CD. All definitions in the CD are incorporated by reference into this SOW.

- 1.1 Purpose of the SOW.** The purpose of this SOW is to set forth the Work necessary to implement the remedial action (RA) selected in the OUI Record of Decision Amendment (OU1 ROD Amendment) and in the OU2 Record of Decision (OU2 ROD) issued by EPA for the site.
- 1.2 Structure of the SOW.** Section 2 (Community Involvement) sets forth EPA's and Settling Party's responsibilities for community involvement. Section 3 (Remedial Action) sets forth requirements regarding the completion of the RA, including primary deliverables related to completion of the RA. Section 4 (Reporting) sets forth Settling Party's reporting obligations. Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding Settling Party's submission of, and EPA's review of, approval of, comment on, and/or modification of, the deliverables. Section 6 (Schedules) sets forth the schedule for submitting the primary deliverables, specifies the supporting deliverables that must accompany each primary deliverable, and sets forth the schedule of milestones regarding the completion of the RA. Section 7 (State Participation) addresses State participation, and Section 8 (References) provides a list of references, including URLs.
- 1.3** The Scope of the Remedy includes the actions described in Section 7 of the OU1 ROD Amendment and in Section 13 of the OU2 ROD, including the following:

OU1 ROD Amendment

- a) Discontinuing the operation of the existing groundwater pump and treat system. This task has been completed.
- b) Injecting calcium polysulfide (CPS) into the high concentration target portions of the aquifer to reduce chromium concentrations. This task has been completed.
- c) Injecting emulsified vegetable oil (EVO) into the high concentration target portions of the aquifer to reduce volatile organic compound (VOC) concentrations, particularly trichloroethene (TCE). This task has been completed.
- d) Implementing long-term monitoring of groundwater to confirm the degradation of chlorinated VOCs, the reduction of hexavalent chromium and the attenuation of the VOC and chromium plumes through Monitored Natural Attenuation (MNA). Long-term monitoring will include MNA parameters and will evaluate the ongoing effectiveness of the active *in-situ* treatments. Metal contaminants

beryllium and vanadium present a non-cancer health hazard that will similarly be addressed by MNA and long-term monitoring.

- e) Establishing institutional controls in the form of a groundwater classification exception area (CEA)/Well Restriction Area (WRA), N.J.A.C. 7:26C-7.3, to restrict groundwater use and prohibit activities that could result in human exposure to beryllium, chromium, vanadium and VOCs in groundwater.
- f) Conducting a review of site conditions at least once every five years until the remediation goals are attained (policy review).

OU2 ROD

- g) Capping the 1.3 acres of vanadium- and chromium-impacted soils in the Eastern Storage Area;
- h) Establishing institutional controls with respect to areas within the SMC Facility, including but not limited to, a deed notice in compliance with N.J.A.C. 7:26C-7.2, easements, restrictive covenants, and/or local ordinances to, *inter alia*,
 - 1) prohibit residential use;
 - 2) ensure that existing caps as described in Section 1 of the OU2 ROD are not disturbed, including building caps, paving caps, soil caps, and vegetative caps, e.g., by paving the former footprint of any demolished buildings;
 - 3) ensure that the proposed cap is not disturbed
 - 4) institute an inspection and maintenance plan of engineering controls such as fencing, soil caps, paving caps, and vegetative caps;
 - 5) institute a management plan to require proper handling of contaminated soil and sediment if any future development involves disturbance of the subsurface soil; and
 - 6) institute a management plan to require that workers wear appropriate protective equipment when handling contaminated soil and sediment if any future development involves disturbance of the subsurface soil.
- i) Maintaining the existing security measures at the site (e.g., signage and fencing);
- j) Excavating approximately 9,800 cubic yards of Hudson Branch sediments to a depth of 12 inches in the channel and a depth of six inches in certain areas outside

the channel to meet remediation goals listed in the Remedial Goals section of the OU2 ROD and to eliminate ecological risk.

- k) Backfilling the excavated areas with clean material to match the surrounding grade and restoring, as necessary;
- l) Monitoring surface water in the Hudson Branch for vanadium until the NJDEP surface water quality standard of 12 micrograms/liter (ug/L) is met; and
- m) Reviewing site conditions at least once every five years, as required by CERCLA.

1.4 The terms used in this SOW that are defined in CERCLA, in regulations promulgated under CERCLA, or in the CD, have the meanings assigned to them in CERCLA, in such regulations, or in the CD, except that the term "Paragraph" or "¶" means a paragraph of this SOW, unless otherwise stated.

2. COMMUNITY INVOLVEMENT

2.1 Community Involvement Responsibilities

- (a) EPA has the lead responsibility for developing and implementing community involvement activities at the site. Previously during the OU2 remedial investigation/feasibility study phase, EPA developed a Community Involvement Plan (CIP) for the site. Pursuant to 40 C.F.R. § 300.435(c), EPA shall review the existing CIP and determine whether it should be revised to describe further public involvement activities during the Work that are not already addressed or provided for in the existing CIP.
- (b) If requested by EPA, Settling Party shall support EPA's community involvement activities. EPA may describe in its CIP Settling Party's responsibilities for community involvement activities. All community involvement activities conducted by Settling Party at EPA's request are subject to EPA's oversight.
- (c) **Settling Party's CI Coordinator.** If requested by EPA, Settling Party shall, within 15 days, designate and notify EPA of Settling Party's Community Involvement Coordinator. Settling Party's default CI Coordinator will be the Project Coordinator. Alternatively, the Settling Party may select a different CI Coordinator or hire a contractor for this purpose. If elected, Settling Party's notice must include the name, title, and qualifications of the Settling Party's CI Coordinator. Settling Party's CI Coordinator is responsible for providing support regarding EPA's community involvement activities, including coordinating with EPA's CI Coordinator regarding responses to the public's inquiries about the site.

3. REMEDIAL ACTION

3.1 **OU1 Implementation of Monitored Natural Attenuation (MNA) Plan and Reporting.** The Settling Party shall implement the OU1 Monitoring Plan dated August

2014, as amended by Table 1, and shall submit Periodic Monitoring Reports consistent with that plan.

3.2 OU2 RA Work Plan. Settling Party shall submit a RA Work Plan (RAWP), consistent with the OU2 Remedial Design (RD) and OU2 ROD, for EPA approval that includes:

- (a) A proposed RA Construction Schedule such as critical path method, Gantt chart, or PERT;
- (b) An updated health and safety plan that covers activities during the RA; and
- (c) Plans for satisfying permitting requirements, including satisfying substantive requirements of permits for site activity.

3.3 OU2 Meetings and Inspections

- (a) **Preconstruction Conference.** Settling Party shall hold a preconstruction conference with EPA and others as directed or approved by EPA and as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995). Settling Party shall prepare minutes of the conference and shall distribute the minutes to all Parties.
- (b) **Periodic Meetings.** During the construction portion of the RA (RA Construction), Settling Party shall meet regularly with EPA, and others as directed or determined by EPA, to discuss construction issues. Settling Party shall distribute an agenda and list of attendees to all Parties prior to each meeting. Settling Party shall prepare minutes of the meetings and shall distribute the minutes to all Parties.
- (c) **Inspections**
 - (1) EPA may, at its discretion, have an on-site presence during the Work. At EPA's request, the Supervising Contractor or other designee shall accompany EPA during inspections.
 - (2) To the extent requested by EPA, Settling Party shall provide on-site office space for EPA personnel to perform their oversight duties. The minimum office requirements are an office desk with chair, reproduction, wireless internet access, and sanitation facilities.
 - (3) Settling Party shall provide personal protective equipment needed for EPA personnel and any oversight officials to perform their oversight duties.
 - (4) Upon notification by EPA of any deficiencies in the RA Construction, Settling Party shall take all necessary steps to correct the deficiencies and/or bring the RA Construction into compliance with the approved Final Remedial Design, any approved design changes, and/or the approved

RAWP. If applicable, Settling Party shall comply with any schedule provided by EPA in its notice of deficiency.

3.4 Emergency Response and Reporting

- (a) **Emergency Response and Reporting.** If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Settling Party shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the authorized EPA officer (as specified in ¶ 3.4(c)) orally; and (3) take such actions in consultation with the authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plan, the Emergency Response Plan, and any other deliverable approved by EPA under the SOW.
- (b) **Release Reporting.** Upon the occurrence of any event during performance of the Work that Settling Party is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, Settling Party shall immediately notify the authorized EPA officer orally.
- (c) The “authorized EPA officer” for purposes of immediate oral notifications and consultations under ¶ 3.4(a) and ¶ 3.4(b) is the EPA Project Coordinator, the EPA Alternate Project Coordinator (if the EPA Project Coordinator is unavailable), or the EPA Emergency Response Unit, Region 2 (if neither EPA Project Coordinator is available).
- (d) For any event covered by ¶ 3.4(a) and ¶ 3.4(b), Settling Party shall: (1) within 14 days after the onset of such event, submit a report to EPA describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to EPA describing all actions taken in response to such event.
- (e) The reporting requirements under ¶ 3.4 are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

3.5 Off-Site Shipments

- (a) Settling Party may ship hazardous substances, pollutants, and contaminants from the site to an off-site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Settling Party will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Settling Party obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). Settling Party may ship Investigation Derived

Waste (IDW) from the site to an off-site facility only if they comply with EPA's *Guide to Management of Investigation Derived Waste*, OSWER 9345.3-03FS (Jan. 1992).

- (b) Settling Party may ship Waste Material from the site to an out-of-state waste management facility only if, prior to any shipment, they provide notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Party also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Party shall provide the notice after the award of the contract for RA construction and before the Waste Material is shipped.

3.6 Certification of OU1 RA Construction Completion

- (a) OU1 Monitored Natural Attenuation (MNA)
 - (1) For purposes of this ¶ 3.6(a), "OU1 RA Construction" comprises the installation of injection and monitoring wells, and the injection of chemicals designed to reduce dissolved contaminant mass. These tasks have already been completed.
 - (2) **Inspection of Constructed Remedy.** In April 2014 (the Inspection Date), Settling Party commenced natural attenuation monitoring of OU1 groundwater at the site using the protocols identified in the 2014 OU1 Routine Groundwater Monitoring Plan (GMP). EPA approved the GMP, Revision 1 on March 27, 2015. Table 1 of the GMP was amended in March 2016, to include two additional metals pertaining to Impact to Groundwater. Settling Party shall implement the EPA-approved MNA Plan and shall submit Periodic Monitoring Reports consistent with that plan.
 - (3) **Shakedown Period.** There shall be a monitoring shakedown period for EPA to review whether the remedy is functioning properly and performing as designed (RA Shakedown). Settling Party shall provide a Shakedown Period Report, based on groundwater monitoring reports, within 6 months after the CD is executed. This Shakedown Report may be included in a monitoring report.
 - (4) **RA Report and Certification for MNA Shakedown.** Following the shakedown period, Settling Party shall submit an "RA Report for OU1

MNA Shakedown” requesting EPA’s determination that RA Shakedown has been completed for OU1 MNA. The RA Report for OU1 MNA Shakedown must: (1) include statements by a registered professional engineer and by Settling Party’s Project Coordinator that construction of the system is complete and that the system is functioning properly and as designed; (2) include a demonstration, and supporting documentation, that construction of the system is complete and that the system is functioning properly and as designed; (3) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA’s *Close Out Procedures for NPL Sites* guidance (May 2011); and (4) be certified in accordance with ¶ 5.5 (Certification).

- (i) If EPA determines that RA Shakedown is not complete, EPA shall so notify Settling Party. EPA’s notice must include a description of, and schedule for, the activities that Settling Party must perform to complete RA Shakedown. EPA’s notice may include a schedule for completion of such activities or may require Settling Party to submit a proposed schedule for EPA approval. Settling Party shall perform all activities described in the EPA notice in accordance with the schedule.
- (ii) If EPA determines, based on the initial or any subsequent RA MNA Reports, that RA Shakedown is complete, EPA shall so notify Settling Party.

(b) OU2

- (1) **Inspection of OU2 Constructed Remedy.** The OU2 RA Construction will be deemed “Complete” for purposes of this ¶ 3.6(b)(1) when the primary construction activity (construction of the cap and excavation of sediments) has been fully performed. Settling Party shall schedule an inspection as an element of obtaining EPA’s Certification of OU2 RA Construction Completion. The inspection must be attended by Settling Party and EPA and/or their representatives.
- (2) **OU2 RA Report and Certification.** Following the inspection, Settling Party shall submit an OU2 RA Report to EPA requesting EPA’s determination that OU2 RA Construction has been completed. The report must: (1) include certifications by a registered professional engineer and by Settling Party’s Project Coordinator, as defined in the CD, that the OU2 RA construction is complete; (2) include as-built drawings signed and stamped by a registered professional engineer; (3) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA’s *Close Out Procedures for NPL Sites* guidance (May 2011); (4) contain sampling data to demonstrate that Performance Standards (Hudson Branch sediment remediation goals) have been achieved; and (5) be certified in accordance

with ¶ 5.5(Certification). In addition, the RA Report shall follow the format outlined in Exhibit 2-5 of the above-referenced Closeout Procedures Guidance.

- (i) If EPA determines that the OU2 RA Construction is not complete, EPA shall so notify Settling Party. EPA's notice must include a description of, and schedule for, the activities that Settling Party must perform to complete the OU2 RA. EPA's notice may include a schedule for completion of such activities or may require Settling Party to submit a proposed schedule for EPA approval. Settling Party shall perform all activities described in the EPA notice in accordance with the schedule.
- (ii) If EPA determines, based on the OU2 RA Report, that OU2 construction is complete, EPA shall so notify Settling Party.

3.7 Certification of OU1 RA Completion

OU1

- (a) Settling Party shall submit an OU1 Completion Report to EPA requesting EPA's OU1 Certification of RA Completion. The report must: (1) include certifications by a registered professional engineer, Settling Party, and the Project Coordinator, as defined in the CD, that the OU1 RA is complete; (2) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011); (3) contain monitoring data to demonstrate that Performance Standards have been achieved; and (4) be certified in accordance with ¶ 5.5(Certification). In addition, the Monitoring Report shall follow the format outlined in Exhibit 2-5 of the above-referenced Closeout Procedures Guidance.
- (b) If EPA concludes that the OU1 RA is not Complete, EPA shall so notify Settling Party. EPA's notice must include a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require Settling Party to submit a schedule for EPA approval. Settling Party shall perform all activities described in the notice in accordance with the schedule.
- (c) If EPA concludes, based on the initial or any subsequent report requesting Certification of the OU1 RA Completion, that the OU1 RA is complete, EPA shall so certify in writing to Settling Party. Issuance of the Certification of Work Completion does not affect the following continuing obligations, including but not limited to: (1) activities under the Periodic Review Support Plan; (2) obligations under Sections VIII (Property Requirements), XIX (Retention of Records), and XVIII (Access to Information) of the CD; (3) Institutional Controls obligations as provided in the ICIAP; and (4) reimbursement of EPA's Future Response Costs under Section X (Payments for Response Costs) of the CD.

OU2

- (d) Settling Party shall sample Hudson Branch surface water for vanadium after the construction inspection identified in ¶ 3.6(b)(1), is completed, consistent with the sampling prescribed in the OU2 RD, and submit a Hudson Branch Surface Water Sampling Report comparing sample results to the New Jersey surface water criteria. If the criteria is not met, the report should recommend additional sampling and subsequent reporting. When the criteria are met, the Settling Party shall submit a OU2 completion report requesting EPA's Certification of OU2 RA Completion. The report must: (1) include certifications by a registered professional engineer and by Settling Party's Project Coordinator, as defined in the CD, that the OU2 RA is complete; (2) include as-built drawings signed and stamped by a registered professional engineer; (3) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA's *Close Out Procedures for NPL Sites* guidance (May 2011); (4) contain sampling data to demonstrate that Performance Standards have been achieved; and (5) be certified in accordance with ¶ 5.5(Certification). In addition, the RA Report shall follow the format outlined in Exhibit 2-5 of the above- referenced Closeout Procedures Guidance.
- (e) If EPA concludes that the OU2 RA is not Complete, EPA shall so notify Settling Party. EPA's notice must include a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require Settling Party to submit a schedule for EPA approval. Settling Party shall perform all activities described in the notice in accordance with the schedule.
- (f) If EPA concludes, based on the initial or any subsequent report requesting Certification of OU2 RA Completion, that the OU2 RA is complete, EPA shall so certify in writing to Settling Party. Issuance of the Certification of Work Completion does not affect the following continuing obligations, including but not limited to: (1) activities under the Periodic Review Support Plan; (2) obligations under Sections VIII (Property Requirements), XIX (Retention of Records), and XVIII (Access to Information) of the CD; (3) Institutional Controls obligations as provided in the ICIAP; and (4) reimbursement of EPA's Future Response Costs under Section X (Payments for Response Costs) of the CD.

4. REPORTING

4.1 Progress Reports. Commencing with the month following lodging of the CD and until EPA approves the OU2 RA Report, Settling Party shall submit progress reports to EPA pursuant to a submission frequency approved by EPA. The reports must cover all activities that took place during the prior reporting period, including:

- (a) The actions that have been taken toward achieving compliance with the CD, including this SOW;

- (b) A summary of all results of sampling, tests, and all other data received or generated by Settling Party;
- (c) A description of all deliverables that Settling Party submitted to EPA;
- (d) A description of all activities relating to RA Construction that are scheduled for the next four weeks;
- (e) An updated RA Construction Schedule, together with information regarding percentage of completion, delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays;
- (f) A description of any modifications to the work plans or other schedules that Settling Party has proposed or that have been approved by EPA; and
- (g) A description of all activities undertaken in support of the Community Involvement Plan (CIP) during the reporting period and those to be undertaken in the next four weeks.

4.2 Notice of Progress Report Schedule Changes. If the schedule for any material activity described in the Progress Reports, including activities required to be described under ¶ 4.1(d), changes, Settling Party shall notify EPA of such change at least seven days before performance of the activity.

5. DELIVERABLES

- 5.1 Applicability.** Settling Party shall submit deliverables for EPA approval or for EPA comment as specified in this SOW. If neither is specified, the deliverable does not require EPA's approval or comment. Paragraphs 5.2 (In Writing) through 5.4 (Technical Specifications) apply to all deliverables. Paragraph 5.5 (Certification) applies to any deliverable that is required to be certified. Paragraph 5.6 (Approval of Deliverables) applies to any deliverable that is required to be submitted for EPA approval.
- 5.2 In Writing.** As provided in ¶ 83 of the CD, all deliverables under this SOW must be in writing unless otherwise specified.
- 5.3** All deliverables must be submitted by the deadlines in the RA Schedule, as applicable. Settling Party shall submit all deliverables to EPA in electronic form. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", Settling Party shall also provide EPA with paper copies of such exhibits.
- 5.4 Technical Specifications**
- (a) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format. Region 2's "Comprehensive Electronic Data Deliverable Specification Manual 1.4" (July 2009) explains the systematic

implementation of EDD within Region 2, and provides detailed instructions of data preparation and identification of data fields required for data submissions. Additional Region 2 EDD guidance and requirements documents, including the "Electronic Data Deliverables Valid Values Reference Manual" and tables, the "Basic Manual for Historic Electronic Data," the "Standalone EQUIS Data Processor User Guide," and EDD templates, can be found at <http://www.epa.gov/region02/superfund/meedd.htm>. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.

- (b) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at <https://edg.epa.gov/EME/>.
- (c) Each file must include an attribute name for each site unit or sub-unit submitted. Consult <http://www.epa.gov/geospatial/policies.html> for any further available guidance on attribute identification and naming.
- (d) Spatial data submitted by Settling Party does not, and is not intended to, define the boundaries of the site.

5.5 Certification. All reports that require compliance with this ¶ 5.5 must be signed by the Settling Party's Project Coordinator, or other responsible official of Settling Party, and must contain the following statement:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5.6 Approval of Deliverables

- (a) **Initial Submissions**
- (1) After review of any deliverable that is required to be submitted for EPA approval under the CD or the SOW, EPA shall: (i) approve, in whole or in part, the submission; (ii) approve the submission upon specified conditions; (iii) disapprove, in whole or in part, the submission; or (iv) any combination of the foregoing.
 - (2) EPA also may modify the initial submission to cure deficiencies in the submission if: (i) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (ii) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.
- (b) **Resubmissions.** Upon receipt of a notice of disapproval under ¶ 5.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 5.6(a), Settling Party shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval. After review of the resubmitted deliverable, EPA may: (1) approve, in whole or in part, the resubmission; (2) approve the resubmission upon specified conditions; (3) modify the resubmission; (4) disapprove, in whole or in part, the resubmission, requiring Settling Party to correct the deficiencies; or (5) any combination of the foregoing.
- (c) **Implementation.** Upon approval, approval upon conditions, or modification by EPA under ¶ 5.6(a) (Initial Submissions) or ¶ 5.6(b) (Resubmissions), of any deliverable, or any portion thereof: (1) such deliverable, or portion thereof, will be incorporated into and enforceable under the CD; and (2) Settling Party shall take any action required by such deliverable, or portion thereof. The implementation of any non-deficient portion of a deliverable submitted or resubmitted under ¶ 5.6(a) or ¶ 5.6(b) does not relieve Settling Party of any liability for stipulated penalties under Section XIV (Stipulated Penalties) of the CD.

5.7 Supporting Deliverables. Settling Party will have developed each of the following as part of the Remedial Design, except for the Periodic Review Support Plan identified as (i) below, which will be completed pursuant to this SOW. Settling Party shall update any of these supporting deliverables as necessary or appropriate during the course of the Work, and/or as requested by EPA, as conditions warrant. Settling Party shall submit each of the following supporting deliverables for EPA approval, except as specifically provided. The deliverables must be submitted, for the first time, by the deadlines in the RD Schedule or the RA Schedule, or any other EPA-approved schedule, as applicable. Settling Party shall develop the deliverables in accordance with all applicable regulations, guidances, and policies (see Section 8 (References)).

- (a) **Health and Safety Plan.** The Health and Safety Plan (HASP) describes all activities to be performed to protect on site personnel and area residents from physical, chemical, and all other hazards' posed by the Work. Settling Party shall develop the HASP in accordance with EPA's Emergency Responder Health and Safety and Occupational Safety and Health Administration (OSHA) requirements under 29 C.F.R. §§ 1910 and 1926. The HASP developed for RD activities should be, as appropriate, updated to cover activities during the RA and updated to cover activities after RA completion. EPA does not approve the HASP, but will review it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.
- (b) **Emergency Response Plan.** The Emergency Response Plan (ERP) must describe procedures to be used in the event of an accident or emergency at the site (for example, power outages, water impoundment failure, treatment plant failure, slope failure, etc.). The ERP must include:
- (1) Name of the person or entity responsible for responding in the event of an emergency incident;
 - (2) Plan and date(s) for meeting(s) with the local community, including local, State, and federal agencies involved in the cleanup, as well as local emergency squads and hospitals;
 - (3) Spill Prevention, Control, and Countermeasures (SPCC) Plan (if applicable), consistent with the regulations under 40 C.F.R. Part 112, describing measures to prevent, and contingency plans for, spills and discharges;
 - (4) Notification activities in accordance with ¶ 3.4(b) (Release Reporting) in the event of a release of hazardous substances requiring reporting under Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004; and
 - (5) A description of all necessary actions to ensure compliance with Paragraph 11 (Emergencies and Releases) of the CD in the event of an occurrence during the performance of the Work that causes or threatens a release of Waste Material from the site that constitutes an emergency or may present an immediate threat to public health or welfare or the environment.
- (c) **Field Sampling Plan.** The Field Sampling Plan (FSP) supplements the QAPP and addresses all sample collection activities. If necessary, the FSP must be written so that a field sampling team unfamiliar with the project would be able to gather the samples and field information required. Settling Party shall develop the FSP in

accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G 89/004 (Oct. 1988).

- (d) **Quality Assurance Project Plan.** The Quality Assurance Project Plan (QAPP) addresses sample analysis and data handling regarding the Work. The QAPP must include a detailed explanation of Settling Party's quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance, and monitoring samples. Settling Party shall update the existing QAPP developed as part of the RD activities, as necessary, in accordance with *EPA Requirements for Quality Assurance Project Plans*, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006); *Guidance for Quality Assurance Project Plans.*, QA/G-5, EPA/240/R 02/009 (Dec. 2002); and *Uniform Federal Policy for Quality Assurance Project Plans*, Parts 1-3, EPA/505/B-04/900A though 900C (Mar. 2005). The QAPP also must include procedures:
- (1) To ensure that EPA and its authorized representative have reasonable access to laboratories used by Settling Party in implementing the CD;
 - (2) To ensure that Settling Party's labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;
 - (3) To ensure that Settling Party's labs perform all analyses using EPA-accepted methods (i.e., the methods documented in *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis*, ILM05.4 (Dec. 2006); *USEPA Contract Laboratory Program Statement of Work for Organic Analysis*, SOM01.2 (amended Apr. 2007); and *USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration)*, ISM01.2 (Jan. 2010)) or other methods acceptable to EPA;
 - (4) To ensure that Settling Party's labs participate in an EPA-accepted QA/QC program or other program QA/QC acceptable to EPA;
 - (5) For Settling Party to provide EPA with notice at least 14 days prior to any sample collection activity;
 - (6) For Settling Party to provide split samples and/or duplicate samples to EPA upon request;
 - (7) For EPA to take any additional samples that it deems necessary;
 - (8) For EPA to provide to Settling Party, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and
 - (9) For Settling Party to submit to EPA all sampling and test results and other data in connection with the implementation of the CD.

- (e) **OU2 Construction Quality Assurance Plan/Construction Quality Control Plan (CQAP/CQCP).** The purpose of the CQAP is to describe planned and systemic activities that provide confidence that the RA construction will satisfy all plans, specifications, and related requirements, including quality objectives. The purpose of the CQCP is to describe the activities to verify that RA construction has satisfied all plans, specifications, and related requirements, including quality objectives. The CQAP/CQCP must:
- (1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQAP/CQCP;
 - (2) Describe the Performance Standards (PS) required to be met to achieve Completion of the RA;
 - (3) Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;
 - (4) Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQAP/CQCP;
 - (5) Describe industry standards and technical specifications used in implementing the CQAP/CQCP;
 - (6) Describe procedures for tracking construction deficiencies from identification through corrective action;
 - (7) Describe procedures for documenting all CQAP/CQCP activities; and
 - (8) Describe procedures for retention of documents and for final storage of documents.
- (f) **OU2 O&M Plan.** The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. Settling Party shall develop the O&M Plan in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001). The O&M Plan must include the following additional requirements:
- (1) Description of PS required to be met to implement the OU2 ROD;
 - (2) Description of activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;
 - (3) **O&M Reporting.** Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and State agencies;

- (4) Description of corrective action in case of systems failure, including:
 - (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve PS; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements; and
 - (5) Description of corrective action to be implemented in the event that PS are not achieved; and a schedule for implementing these corrective actions.
- (g) **OU2 O&M Manual.** The O&M Manual serves as a guide to the purpose and function of the equipment and systems that make up the remedy. Settling Party shall develop the O&M Manual which will supplement the O&M Plan in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001).
- (h) **Institutional Controls Implementation and Assurance Plan (ICIAP).** Settling Party shall submit the ICIAP for EPA approval within 60 days after EPA approves the RAWP. The ICIAP describes plans to implement, maintain, and enforce the Institutional Controls (ICs) at the site. Settling Party shall develop the ICIAP in accordance with *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012), and *Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites*, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012). The ICIAP must include the following additional requirements:
- (1) Locations of recorded real property interests (e.g., easements, liens) and resource interests in the property that may affect ICs (e.g., surface, mineral, and water rights) including accurate mapping and geographic information system (GIS) coordinates of such interests; and
 - (2) Legal descriptions and survey maps that are prepared according to current American Land Title Association (ALTA) Survey guidelines and certified by a licensed surveyor.
 - (3) Draft Proprietary Controls substantially in the model deed notice form found at Appendix E that:
 - (i) grant a right access to conduct any activity regarding the Consent Decree, including those activities listed in ¶16.a. of the Consent Decree;

- (ii) grant the right to enforce the land, water, or other resource use restrictions set forth in ¶16.b. of the Consent Decree consistent with the requirements for ICs specified in the OU1 ROD and OU2 ROD, including, but not limited to, a prohibition on residential use of the Affected Property, and establishment of a classification exception area and well restriction area pursuant to N.J.A.C. 7:26C-7.3; and
 - (iii) grant Proprietary Controls to one or more of the following persons and their representatives, as determined by EPA: the United States, the State, SMC, TRC, and other appropriate grantees. Proprietary Controls in the nature of a deed notice, in substantially the form of Appendix E, granted to persons other than the United States must include a designation that EPA (and/or the State as appropriate) is a “third-party beneficiary” expressly granted the right of access and the right to enforce the covenants allowing EPA and/or the State to maintain the right to enforce the Proprietary Controls without acquiring an interest in real property.
- (4) Evidence of title, such as title insurance, documenting that the entity or person conveying the Proprietary Control has the title and authority to do so. Establishment of a classification exception area and well restriction area pursuant to N.J.A.C. 7:26C-7.3 shall not require evidence of title.
- (i) **Periodic Review Support Plan.** The Periodic Review Support Plan addresses the studies and investigations that Settling Party shall conduct to support EPA’s reviews of whether the RA is protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c) (also known as “Five-year Reviews”). If directed by EPA, Settling Party shall develop the plan in accordance with *Comprehensive Five-year Review Guidance*, OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidances.

6. SCHEDULES

- 6.1 **Applicability and Revisions.** All deliverables and tasks required under this SOW must be submitted or completed by the deadlines or within the time durations listed in the RA Schedule set forth below. Settling Party may submit proposed revised RA Schedules for

EPA approval. Upon EPA's approval, the revised RA Schedule supersedes the RA Schedule set forth below, and any previously-approved RA Schedules.

6.2 RA Schedule

	Description of Deliverable / Task	¶ Ref.	Deadline
1	Identify RA team		30 days after EPA Notice of Authorization to Proceed with RA
2	OU2 RAWP	3.1	45 days after EPA Notice of Authorization to Proceed with RA, or EPA approval of the OU2 RD, whichever is later
3	OU1 Periodic Monitoring Report	3.2	Within 6 months of the appropriate sampling event, or 60 days after validated data is received for the last monitoring event of the period, whichever is later
4	OU2 Pre-Construction Conference	3.3(a)	No more than 30 days prior to the start of construction
5	OU2 Start of Construction		No more than 30 days after Approval of RAWP
6	OU1 RA Report for MNA	3.5(d)3.6(a)(4)	After the 2 year shakedown period is completed
7	OU2 RA Completion Inspection	3.7(a)	15 days after completion of construction
8	RA Report for OU2	3.7(b)	60 days after RA Completion Inspection
9	OU1 Monitoring Report Requesting Certification of Completion	3.7 (c)	40 days after remediation goals are met for 2 consecutive years.

7. STATE PARTICIPATION

7.1 Copies. Settling Party shall, at any time it sends a deliverable to EPA, send a copy of such deliverable to the State. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to Settling Party, send a copy of such document to the State.

7.2 Review and Comment. The State will have a reasonable opportunity for review and comment prior to:

- (a) Any EPA approval or disapproval under ¶ 5.6 (Approval of Deliverables) of any deliverables that are required to be submitted for EPA approval; and

Any approval or disapproval of the Construction Phase under ¶ 3.6 (RA Construction Completion), and any disapproval of, or Certification of RA Completion under ¶ 3.7 (Certification of RA Completion).

8. REFERENCES

- 8.1 The following regulations and guidance documents, among others, apply to the Work. Any item for which a specific URL is not provided below is available on one of the two EPA Web pages listed in ¶ 8.2:
- (a) A Compendium of Superfund Field Operations Methods, OSWER 9355.0-14, EPA/540/P-87/001a (Aug. 1987).
 - (b) CERCLA Compliance with Other Laws Manual, Part I: Interim Final, OSWER 9234.1-01, EPA/540/G-89/006 (Aug. 1988).
 - (c) Guidance for Conducting Remedial Investigations and Feasibility Studies, OSWER 9355.3-01, EPA/540/G-89/004 (Oct. 1988).
 - (d) CERCLA Compliance with Other Laws Manual, Part II, OSWER 9234.1-02, EPA/540/G-89/009 (Aug. 1989).
 - (e) Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, OSWER 9355.5-01, EPA/540/G-90/001 (Apr. 1990).
 - (f) Guidance on Expediting Remedial Design and Remedial Actions, OSWER 9355.5-02, EPA/540/G-90/006 (Aug. 1990).
 - (g) Guide to Management of Investigation-Derived Wastes, OSWER 9345.3-03FS (Jan. 1992).
 - (h) Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, OSWER 9355.7-03 (Feb. 1992).
 - (i) Guidance for Conducting Treatability Studies under CERCLA, OSWER 9380.3-10, EPA/540/R-92/071A (Nov. 1992).
 - (j) National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, 40 C.F.R. Part 300 (Oct. 1994).
 - (k) Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (Mar. 1995).
 - (l) Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA/540/R-95/059 (June 1995).
 - (m) EPA Guidance for Data Quality Assessment, Practical Methods for Data Analysis, QA/G-9, EPA/600/R-96/084 (July 2000).

- (n) Operation and Maintenance in the Superfund Program, OSWER 9200.1-37FS, EPA/540/F-01/004 (May 2001).
- (o) Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P, 540-R-01-007 (June 2001).
- (p) Guidance for Quality Assurance Project Plans, QA/G-5, EPA/240/R-02/009 (Dec. 2002).
- (q) Institutional Controls: Third Party Beneficiary Rights in Proprietary Controls (Apr. 2004).
- (r) Quality Systems for Environmental Data and Technology Programs -- Requirements with Guidance for Use, ANSI/ASQ E4-2004 (2004).
- (s) Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3, EPA/505/B-04/900A through 900C (Mar. 2005).
- (t) Superfund Community Involvement Handbook, EPA/540/K-05/003 (Apr. 2005).
- (u) EPA Guidance on Systematic Planning Using the Data Quality Objectives Process, QA/G-4, EPA/240/B-06/001 (Feb. 2006).
- (v) EPA Requirements for Quality Assurance Project Plans, QA/R-5, EPA/240/B-01/003 (Mar. 2001, reissued May 2006).
- (w) EPA Requirements for Quality Management Plans, QA/R-2, EPA/240/B-01/002 (Mar. 2001, reissued May 2006).
- (x) USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4 (Dec. 2006).
- (y) USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2 (amended Apr. 2007).
- (z) EPA National Geospatial Data Policy, CIO Policy Transmittal 05-002 (Aug. 2008), available at <http://www.epa.gov/geospatial/policies.html> and http://www.epa.gov/geospatial/docs/National_Geospatial_Data_Policy.pdf.
- (aa) Principles for Greener Cleanups (Aug. 2009), available at <http://www.epa.gov/oswer/greenercleanups/>.
- (bb) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).
- (cc) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).

- (dd) Recommended Evaluation of Institutional Controls: Supplement to the “Comprehensive Five-Year Review Guidance,” OSWER 9355.7-18 (Sep. 2011).
- (ee) Construction Specifications Institute's MasterFormat 2012, available from the Construction Specifications Institute, www.csinet.org/masterformat.
- (ff) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach , OSWER 9200.2-125 (Sep. 2012)
- (gg) Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89, EPA/540/R-09/001 (Dec. 2012).
- (hh) Institutional Controls: A Guide to Preparing Institutional Controls Implementation and Assurance Plans at Contaminated Sites, OSWER 9200.0-77, EPA/540/R-09/02 (Dec. 2012).
- (ii) EPA’s Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), <http://www.epaosc.org/HealthSafetyManual/manual-index.htm>
- (jj) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).
- (kk) Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions, OSWER 9355.0-129 (Nov. 2013).

8.2 A more complete list may be found on the following EPA Web pages:

Laws, Policy, and Guidance <http://www.epa.gov/superfund/policy/index.htm>

Test Methods Collections <http://www.epa.gov/fem/methcollectns.htm>

8.3 For any regulation or guidance referenced in the CD or SOW, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Settling Party receives notification from EPA of the modification, amendment, or replacement.

APPENDIX C



LEGEND

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NOTES:

1. ALL UTILITIES SHOWN ARE BASED ON RECORD DRAWINGS AND FIELD SURVEY.
2. THE LOCATION AND DEPTH OF UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.
4. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
5. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES.
6. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL UTILITIES AND STRUCTURES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ALL UTILITIES AND STRUCTURES.
8. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL UTILITIES AND STRUCTURES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ALL UTILITIES AND STRUCTURES.
10. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL UTILITIES AND STRUCTURES.

OTFC
 OFFICE OF THE TOWN ENGINEER
 100 N. WEST AVENUE
 WESTFIELD, MASSACHUSETTS 01096
 TEL: 413-562-1234
 FAX: 413-562-1235
 WWW.OTFC.CITYOFWESTFIELD.MA

APPENDIX D



APPENDIX E

MODEL DEED NOTICE

DEED NOTICE

This shell document contains blanks and matter in brackets []. These blanks shall be replaced with the required site information prior to recording.

Matter bracketed [] is not intended for deletion, but rather is intended to be descriptive of the variable information that may be contained in the final document.

IN ACCORDANCE WITH N.J.S.A. 58:10B-13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

[Print name below signature]

Recorded by: _____
[Signature, Officer of County Recording Office]

[Print name below signature]

DEED NOTICE

This Deed Notice is made as of the ____ day of _____, _____, by *[Insert the full legal name and address of each current property owner]* (together with his/her/its/their successors and assigns, collectively "Owner").

1. THE PROPERTY. *[Insert the full legal name and address of each current property owner]* *[Insert as appropriate: "is", or "are"]* the owner in fee simple of certain real property designated as Block(s) _____ Lot(s) _____, on the tax map of the *[Insert, as appropriate: City/Borough/Township/Town]* of *[Insert the name of municipality]*, *[Insert the name of county]* County; the New Jersey Department of Environmental Protection Program Interest Number (Preferred ID) for the contaminated site which includes this property is *[Insert the Program Interest Number (Preferred ID)]*; and the property is more particularly described in Exhibit A, which is attached hereto and made a part hereof (the "Property").

2. REMEDIATION.

[Insert the following paragraph when engineering controls are also implemented at the site:

5C. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property; a narrative description of these engineering controls is provided in Exhibit C.]

6A. CHANGE IN OWNERSHIP AND REZONING.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this Paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection on a form provided by the Department and available at www.nj.gov/srp/forms within thirty (30) calendar days after the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iii. The Owner and the subsequent owners shall provide written notice to the Department, on a form available from the Department at www.nj.gov/srp/forms, within thirty (30) calendar days after the owner's petition for or filing of any document initiating a rezoning of the Property to residential.

6B. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

7A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. The Owner and all subsequent owners and lessees shall notify any person, including, without limitation, tenants, employees of tenants, and contractors, intending to conduct invasive work or excavate within the Restricted Areas, of the nature and location of contamination in the Restricted Areas, and, of the precautions necessary to minimize potential human exposure to contaminants.

ii. Except as provided in Paragraph 7B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property without first obtaining a soil remedial action permit modification pursuant to N.J.A.C. 7:26C-7. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration.

iii. Notwithstanding subparagraph 7Aii., above, a soil remedial action permit modification is not required for any alteration, improvement, or disturbance provided that the owner, lessee or operator:

(A) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1-877-WARN-DEP or 1-877-927-6337, within twenty-four (24) hours after the beginning of each alteration, improvement, or disturbance;

(B) Restores any disturbance of an engineering control to pre-disturbance conditions within sixty (60) calendar days after the initiation of the alteration, improvement or disturbance;

(C) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration;

(D) Ensures that human exposure to contamination in excess of the remediation standards does not occur; and

(E) Describes, in the next biennial certification the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance.

7B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, or immediate environmental concern, see N.J.S.A. 58:10C-2, any person may temporarily breach an engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337;

ii. Hires a Licensed Site Remediation Professional (unless the Restricted Areas includes an unregulated heating oil tank) to respond to the emergency;

iii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iv. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

v. Notifies the Department of Environmental Protection when the emergency or immediate environmental concern has ended by calling the DEP Hotline at 1-877-WARNDEP or 1-877-927-6337; and

vi. Restores the engineering control to the pre-emergency conditions as soon as possible, and provides notification to the Department of Environmental Protection within sixty (60) calendar days after completion of the restoration of the engineering control, including: (a) the nature and likely cause of the emergency; (b) the potential discharges of or exposures to contaminants, if any, that may have occurred; (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment; (d) the measures completed or implemented to restore the engineering control; and (e) the changes to the engineering control or site operation and maintenance plan to prevent reoccurrence of such conditions in the future.

8. TERMINATION OF DEED NOTICE.

i. This Deed Notice may be terminated only upon filing of a Termination of Deed Notice, available at N.J.A.C. 7:26C Appendix C, with the office of the *[Insert as appropriate the County Clerk/Register of Deeds and Mortgages]* of *[Insert the name of the County]* County, New Jersey, expressly terminating this Deed Notice.

ii. Within thirty (30) calendar days after the filing of a Termination of Deed Notice, the owner of the property shall apply to the Department for termination of the soil remedial action permit pursuant to N.J.A.C. 7:26C-7.

9. ACCESS. The Owner, and the subsequent owners, lessees and operators agree to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if the subsequent owners, lessees and operators, during their ownership, tenancy, or operation, and the Owner fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

10. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this site.

ii. The restrictions provided herein may be enforceable solely by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C, and require additional remediation and assess damages pursuant to N.J.S.A. 58:10-23.11, and N.J.S.A. 58:10C.

11. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as though the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

12A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

- i. Exhibit A-1: Vicinity Map - A map that identifies by name the roads, and other important geographical features in the vicinity of the Property (for example, USGS Quad map, Hagstrom County Maps);
- ii. Exhibit A-2: Metes and Bounds Description - A tax map of lots and blocks as well as metes and bounds description of the Property, including reference to tax lot and block numbers for the Property;
- iii. Exhibit A-3: Property Map - A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; and the Property Map shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

12B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

- i. Exhibit B-1: Restricted Area Map - A separate map for each restricted area that includes:
 - (A) As-built diagrams of each engineering control, including caps, fences, slurry walls, (and, if any) ground water monitoring wells, extent of the ground water classification exception area, pumping and treatment systems that may be required as part of a ground water engineering control in addition to the deed notice
 - (B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and
 - (C) Designation of all soil and sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described in the following paragraph.
- ii. Exhibit B-2: Restricted Area Data Table - A separate table for each restricted area that includes either (A) or (B) through (F):
 - (A) Only for historic fill extending over the entire site or a portion of the site and for which analytical data are limited or do not exist, a narrative that states that historic fill is present at the site, a description of the fill material (e.g., ash, cinders, brick, dredge

material), and a statement that such material may include, but is not limited to, contaminants such as PAHs and metals;

(B) Sample location designation from Restricted Area map (Exhibit B-1);

(C) Sample elevation based upon mean sea level;

(D) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(E) The restricted and unrestricted use standards for each contaminant in the table; and

(F) The remaining concentration of each contaminant at each sample location at each elevation.

12C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls *[Insert as appropriate: and engineering controls]* as follows:

i. Exhibit C-1: Deed Notice as Institutional Control: Exhibit C-1 includes a narrative description of the restriction and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) Description and estimated size of the Restricted Areas as described above;

(B) Description of the restrictions on the Property by operation of this Deed Notice; and

(C) The objective of the restrictions.

[Insert the following if engineering controls are part of the remedial action for the site:

ii. Exhibit C-2: *[Insert the name of the first engineering control]*: Exhibit C-2 includes a narrative description of *[Insert the name of the first engineering control]* as follows:

(A) Description of the engineering control;

(B) The objective of the engineering control; and

(C) How the engineering control is intended to function.

[Repeat the contents of Exhibit C-2, renumbering accordingly, for each separate engineering control that is part of the remedial action for the site.]

13. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]

WITNESS: _____
[Signature]

[Print name below signature]

STATE OF [State where document is executed] SS.:
COUNTY OF [County where document is executed]

I certify that on _____, 20__, [Name of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that this person [or if more than one person, each person]

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed.

_____, Notary Public
[Print Name and Title]

14. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is a corporation]

ATTEST: [Name of corporation]

_____ By _____

[Print name and title] [Signature]

STATE OF [State where document is executed] SS.:
COUNTY OF [County where document is executed]

I certify that on _____, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) this person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) this person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) this document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) this person knows the proper seal of the corporation which was affixed to this document; and

(e) this person signed this proof to attest to the truth of these facts.

[Signature]

[Print name and title of attesting witness]

Signed and sworn before me on _____, 20__

_____, Notary Public

[Print name and title]

