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

UNITED STATES OF AMERICA and NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION and ADMINISTRATOR, NEW JERSEY SPILL COMPENSATION FUND Plaintiffs, v. FORD MOTOR COMPANY and THE BOROUGH OF RINGWOOD Defendants.	CIVIL ACTION NO. 2:19-cv-12157

CONSENT DECREE FOR REMEDIAL ACTION FOR OPERABLE UNIT 2
RINGWOOD MINES/LANDFILL SUPERFUND SITE

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I. BACKGROUND

A. Plaintiffs The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and the New Jersey Department of Environmental Protection, and the Administrator of the New Jersey Spill Compensation Fund (collectively referenced herein as "NJDEP"), filed a complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9606 and 9607 and, in the case of NJDEP, the Spill Compensation and Control Act ("the Spill Act"), N.J.S.A. 58:10-23.11 through 23.24.

B. The Plaintiffs, in their complaint seek, *inter alia*: (1) reimbursement of costs incurred by EPA, the United States Department of Justice ("DOJ"), and NJDEP for response actions at the Ringwood Mines/Landfill Superfund Site in Ringwood, New Jersey, together with accrued interest; and (2) performance of response actions by the defendants for Operable Unit 2 ("OU2") of 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 notified the State of New Jersey (the "State") on January 29, 2015, of negotiations with potentially responsible parties ("PRPs") regarding the implementation of a remedial action for OU2 of the Site, and EPA has provided NJDEP with an opportunity to participate in such negotiations and be a party to this Consent Decree ("CD").

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the United States Department of the Interior and the National Oceanic and Atmospheric Agency on August 20, 2015 of negotiations with PRPs regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustees to participate in the negotiation of this CD.

E. The defendants that have entered into this CD ("Settling Defendants" or "SDs") do not admit any liability to Plaintiffs arising out of the transactions or occurrences alleged in the complaints, nor do they 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.

F. 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, in 1983. From 1984 through 1988, Ford Motor Company ("Ford") implemented a Remedial Investigation and Feasibility Study ("RI/FS") at the Site and removed 7,000 cubic yards of paint sludge and associated soil from certain areas of the Site. In 1988, EPA issued a Record of Decision ("1988 ROD"). Under the 1988 ROD, a long-term groundwater and surface water remedy was selected. The Site was deleted from the NPL in 1994. 59 Fed. Reg. 54830 (Nov. 2, 1994).

G. Additional paint sludge was discovered at the Site in 1995, 1998, and 2004. In September 2005, EPA issued an Administrative Order on Consent ("AOC"), under which Ford agreed to perform a second RI. Under a September 2005 Unilateral Administrative Order

("UAO"), EPA ordered the Borough of Ringwood (the "Borough") to participate and cooperate with Ford in performing the RI required under the 2005 AOC.

H. The Site was again placed on the NPL by publication in the Federal Register on September 27, 2006. 71 Fed. Reg. 56399 (Sept. 27, 2006).

I. In May 2010, EPA issued a second AOC, CERCLA Docket No. 02-2010-2020 ("RI/FS Order"), under which Ford agreed to perform an RI/FS for certain areas of the Site. Again, EPA issued a UAO to the Borough, which required it to participate and cooperate with Ford in performing the RI/FS to be done under the 2010 AOC.

J. Ford submitted the OU2 RI/FS Reports to EPA, and EPA approved the OU2 RI/FS Reports in September of 2013.

K. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on October 2, 2013, 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 the Regional Administrator, EPA Region 2, based the selection of the response action.

L. The decision by EPA on the Remedial Action to be implemented at OU2 is embodied in a Record of Decision ("ROD"), executed on June 30, 2014. The 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. On October 1, 2014, EPA issued a third AOC for Remedial Design, CERCLA Docket No. 02-2014-2025 ("RD Order") to Ford for Remedial Design and the Scope of Work for OU2. EPA issued a UAO to the Borough, which required it to participate and cooperate with Ford in performing the Remedial Design to be done under the 2014 AOC.

N. The SDs are performing under their respective administrative orders of 2005, 2010, and 2014.

O. On April 15, 2015, EPA published an Explanation of Significant Differences ("ESD") in accordance with Section 117(c) of CERCLA, 42 U.S.C. § 9617(c). The ESD documents EPA's decision to change to a contingency remedy identified in the ROD. The contingency remedy identified in the ROD and ESD indicated that a new recycling center would be constructed and would protect the remedial cap on the O'Connor Disposal Area within the Site. Further, the current recycling center will be utilized for wetland mitigation purposes as part of the riparian zone and as such may be used as green space by the community as noted in the ESD.

P. Based on the information presently available to EPA and NJDEP, EPA and NJDEP believe that the Work will be properly and promptly conducted by SDs if conducted in accordance with the ROD, the ESD, the approved Remedial Design, this CD, and its appendices.

This CD provides for performance of the entire remedy selected in the ROD and ESD. The SDs have reached an agreement among themselves, separate from this CD, on an allocation of certain obligations imposed by this CD. The United States, to facilitate settlement of potential contribution claims among the SDs and to expedite the implementation of the remedy selected in the ROD and ESD, has agreed to terms in this CD that implement the SDs' allocation. However, the Parties do not waive their positions on the divisibility of the Site and whether liability under CERCLA is apportionable. SDs acknowledge that the Spill Act imposes joint and several liability.

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

R. The Parties recognize, and the Court by entering this CD finds, that this CD has been negotiated by the Parties in good faith and implementation of this CD will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this CD 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 SDs. Solely for the purposes of this CD and the underlying complaints, SDs waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. SDs shall not challenge the terms of this CD or this Court's jurisdiction to enter and enforce this CD.

III. PARTIES BOUND

2. This CD is binding upon the United States and NJDEP and upon SDs and their successors, and assigns. Any change in ownership or corporate or other legal status of an SD including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such SD's responsibilities under this CD.

3. SDs shall provide a copy of this CD to each contractor hired to perform the Work and to each person representing SDs with respect to the Work, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this CD. SDs or their contractors shall provide written notice of the CD to all subcontractors hired to perform any portion of the Work. SDs shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with the terms of this CD. With regard to the activities undertaken pursuant to this CD, each contractor and subcontractor shall be deemed to be in a contractual relationship with an SD 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 CD, terms used in this CD 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 CD or its appendices, the following definitions shall apply solely for purposes of this CD:

"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 ICs 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" or "CD" shall mean this consent decree and all appendices attached hereto (listed in Section XXII). In the event of conflict between this CD and any appendix, this CD shall control.

"Day" or "day" shall mean a calendar day. In computing any period of time under this CD, 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.

"Effective Date" shall mean the date upon which the approval of this CD 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.

"ESD" shall mean the Explanation of Significant Differences issued by the EPA in April 2015. The ESD is attached as Appendix D.

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

"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 CD, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this CD, 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)), ¶ 28 (Access to Financial Assurance),

Section VII (Remedy Review), Section VIII (Property Requirements) (including the cost of attorney time and any monies paid to secure access 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, and all Interest on those Past Response Costs Ford has agreed to pay under this CD that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from August 31, 2015 to the Effective Date, and Agency for Toxic Substances and Disease Registry ("ATSDR") costs regarding the Site.

"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.

"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 between August 31, 2015 and the Effective Date, or (b) incurred prior to the Effective Date but paid after that date, provided however, "Interim Response Costs" shall include neither "Remedial Design Costs" nor "RI/FS Order Costs" as defined herein.

"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 https://www.epa.gov/superfund/superfund-interest-rates.

"Ringwood Mines/Landfill 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).

"Municipal Solid Waste" or "MSW" shall mean waste material: (a) generated by a household (including a single or multifamily residence); or (b) generated by a commercial, industrial, or institutional entity, to the extent that the waste material (1) is essentially the same as waste normally generated by a household; (2) is collected and disposed of with other municipal solid waste as part of normal municipal solid waste collection services; and (3) contains a relative quantity of hazardous substances no greater than the relative quantity of hazardous substances contained in waste material generated by a typical single-family household.

"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.

"Non-Settling Owner" shall mean any person, other than SDs, that owns or controls any Affected Property, including the Public Service Electric and Gas Company. The clause "Non-Settling Owner's Affected Property" means Affected Property owned or controlled by Non-Settling Owner.

"NJDEP Future Cleanup and Removal Costs" shall mean all costs, including direct and indirect costs and State Interest, NJDEP will incur after the Effective Date of the CD in connection with the Work.

"NJDEP Natural Resource Damages" shall mean all claims arising from discharges at the Site that occurred prior to the effective date of this CD, and that are recoverable by NJDEP as natural resource damages for injuries to natural resources under the Spill Act; the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 through -20; the Oil Pollution Act, 33 U.S.C.A. §§ 2701 through -2761; the Clean Water Act, 33 U.S.C.A. §§ 1251 through -1387; the Comprehensive Environmental Response Compensation and Liability Act, 42 U.S.C.A. §§ 9601 through -9675; the Sanitary Landfill Act, or any other state or federal common law, statute, or regulation, and include:

a. The costs of assessing injury to natural resources and natural resource services, NJDEP's Office of Natural Resource Restoration's oversight costs determined pursuant to N.J.A.C. 7:26C-4.7, attorney's fees, consultants and experts' fees, other litigation costs, and interest, incurred prior to the Effective Date of this CD; and
b. Compensation for the lost value of, injury to, or destruction of natural resources and natural resource services.

"NJDEP Natural Resource Damages" do not include:

a. Compliance with any statutory or regulatory requirement that is not within the definition of Natural Resource Damages;
b. Requirements to clean up any contamination as a result of discharges at the Site; or
c. The Settling Defendants' continuing obligations to pay NJDEP's oversight costs determined pursuant to N.J.A.C. 7:26C-4.7, incurred after the Effective Date of this CD.

"NJDEP Past Cleanup and Removal Costs" shall mean all costs, including direct and indirect costs and State Interest, NJDEP incurred on or before the Effective Date of the CD in connection with the Site.

"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.

"Paragraph" or "¶" shall mean a portion of this CD or the SOW, where specified, identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean the United States, the NJDEP, Ford, and the Borough.

"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 August 31, 2015, plus Interest on all such costs that has accrued pursuant to 42 U.S.C. § 9607(a) through such date, provided however, "Past Response Costs" shall include neither "Remedial Design Costs" nor "RI/FS Order Costs" as defined herein.

"Performance Standards" shall mean the cleanup levels and other measures of achievement of the remedial action objectives, as set forth in the ROD and ESD.

"Plaintiffs" shall mean the United States and the NJDEP.

"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).

"Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to Operable Unit 2 at the Site signed on June 30, 2014, by the Regional Administrator, EPA Region 2, or her delegate, and all attachments thereto, as modified by the ESD. The ROD is attached as Appendix A.

"Remedial Action" or "RA" shall mean the remedial action selected in the ROD.

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

"Remedial Design Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid or incurred in reviewing or developing plans, reports, and other items pursuant to the RD Order, verifying the Work, or otherwise implementing, overseeing, or enforcing the RD Order.

"RI/FS Order Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid or incurred in reviewing or developing plans, reports, and other items pursuant to the RI/FS Order.

"Section" shall mean a portion of this CD identified by a Roman numeral.

"Settling Defendants" or "SDs" shall mean Ford Motor Company and the Borough of Ringwood.

"Site" shall mean the Ringwood Mines/Landfill Superfund Site, encompassing approximately 455 acres, located in the Borough of Ringwood, Passaic County, New Jersey and depicted generally on the map attached as Appendix C.

"State" shall mean the State of New Jersey.

"State Interest" shall mean the interest rate established by R. 4:42 of the then-current edition of the New Jersey Court Rules.

"Statement of Work" or "SOW" shall mean the document describing the activities SDs must perform to implement the RA and O&M regarding the Site for Operable Unit 2, which is attached as Appendix B of this CD.

"Supervising Contractor" shall mean the principal contractor retained by Ford to supervise and direct the implementation of the Work under this CD.

"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.

"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); and (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

"Work" shall mean all activities and obligations SDs are required to perform under this CD, 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 CD are to protect public health or welfare or the environment by the implementation of response actions at the Site by the SDs, to pay response costs of the Plaintiffs, and to resolve the claims of Plaintiffs against the SDs as provided in this CD.

6. **Commitments by SDs.**

a. **Commitments by Ford**. Ford shall finance and perform the Work in accordance with this CD, the ROD, the ESD, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth in this CD or developed by the SDs and approved by EPA pursuant to this CD. Ford shall pay the United States for Past Response Costs and Future Response Costs and NJDEP for NJDEP Past Cleanup and Removal Costs and NJDEP Future Cleanup and Removal Costs as provided in this CD.

b. **Commitments by the Borough.** The Borough shall perform the Work in accordance with this CD, the ROD, the ESD, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth in this CD or developed by the SDs and approved by EPA pursuant to this CD.

7. **Compliance with Applicable Law**. Nothing in this CD limits SDs' obligations to comply with the requirements of all applicable federal and state laws and

regulations. SDs must also comply with all applicable or relevant and appropriate requirements of all federal and New Jersey environmental laws as set forth in the ROD and the SOW. The activities conducted pursuant to this CD, 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 or state permit or approval, SDs shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. This subparagraph shall not apply to the construction of the recycling center in the O'Connor Disposal Area as described in the ROD and ESD.

b. SDs 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 they have submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

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

(2) EPA shall designate and notify Ford of its 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) NJDEP shall designate and notify EPA and the SDs of its Project Coordinator and Alternate Project Coordinator. NJDEP may designate other representatives, including its employees, contractors and/or consultants to oversee the Work. For any meetings and inspections in which EPA's Project Coordinator participates, NJDEP's Project Coordinator also may participate. Ford shall notify NJDEP and the Borough reasonably in advance of any such meetings or inspections.

(4) Ford's Project Coordinator shall confer, via telephonically or in person, with EPA's Project Coordinator at least monthly.

b. **Supervising Contractor**. Ford's proposed Supervising Contractor must have 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) Ford shall designate, and notify EPA, within 10 days after the Effective Date, of the names, contact information, and qualifications of Ford's proposed Project Coordinator and Supervising Contractor.

(2) EPA, after a reasonable opportunity for review and comment by the NJDEP, shall issue notices of disapproval and/or authorizations to proceed regarding the retention of the proposed Project Coordinator and Supervising Contractor, as applicable. If EPA issues a notice of disapproval, Ford 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 the retention of each supplemental proposed coordinator and/or contractor. Ford may select any coordinator/contractor covered by an authorization to retain him or her and shall, within 21 days, notify EPA of Ford's selection.

(3) Ford 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), Ford has proposed, and EPA has authorized Ford to proceed, retaining the following:

Project Coordinator: Colleen Liddell, Ford Motor Company, 290 Town Center Drive, Suite 800, Dearborn MI 48126.

Supervising Contractor: Craig Coslett, de maximis, inc., 1550 Pond Road, Suite 120, Allentown, PA 18104.

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

11. **Emergencies and Releases**. SDs shall comply with the emergency and release response and reporting requirements under ¶ 3.4 (Emergency Response and Reporting) of the SOW. Subject to Section XV (Covenants by Plaintiffs), nothing in this CD, including ¶ 3.4 of the SOW, limits any authority of Plaintiffs: (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 an SD's failure to take appropriate response action under ¶ 3.4 of the SOW, EPA or NJDEP, as appropriate, takes such action instead, such SD shall reimburse EPA and/or NJDEP, under Section X (Payments for Response Costs) for all costs of the response action.

12. **Community Involvement**. As set forth in Section 2 of the SOW, EPA has the lead responsibility for developing and implementing community involvement activities at the Site. If requested by EPA, SDs shall conduct community involvement activities under EPA's oversight as provided for in, and in accordance with Section 2 of the SOW. Such activities may include, but are not limited to, designation of a Community Involvement Coordinator. 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 ¶ 1.3 of the SOW, then EPA, in consultation with NJDEP, may notify SDs of such modification. If an SD 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 an SD invokes dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this CD, and SDs shall implement all work required by such modification. SDs shall incorporate the modification into the deliverable 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 CD.

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

VII. REMEDY REVIEW

15. **Periodic Review**. SDs shall conduct, in accordance with ¶ 5.7(j) (Periodic Review Support Plan) 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

16. **Agreements Regarding Access and Non-Interference**.

a. SDs 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 SDs and by Plaintiffs, providing that such Non-Settling Owner and the Borough, with respect to the Borough's Affected Property shall:

(1) Provide Plaintiffs and SDs, and their representatives, contractors, and subcontractors with access at all reasonable times to such Affected Property to conduct any activity regarding the CD, including those listed in ¶ 1.3 of the SOW; and

(2) Refrain from using such Affected Property in any manner that EPA or NJDEP determines will: (i) pose an unacceptable risk to human health or to the environment due to exposure to Waste Material, or (ii) interfere with or adversely affect the implementation, integrity, or protectiveness of the RA. The restrictions include those listed in the guidance documents referenced in ¶ 5.7(i) of the SOW.

17. **Best Efforts**. As used in this Section, "best efforts" means the efforts that a reasonable person in the position of such SD, as applicable, 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 Proprietary Controls, agreements, releases, subordinations, modifications, or relocations of Prior Encumbrances that affect the title to the Affected Property, as applicable. If an SD is unable to accomplish what is required through "best efforts" in a timely manner, such SD 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 such SD or take independent action in obtaining such Proprietary Controls, agreements, releases, subordinations, modifications, or relocations of Prior Encumbrances that affect the title to the Affected Property, as applicable. 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. If EPA determines in a decision document prepared in accordance with the NCP that ICs in the form of state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices are needed, SDs shall cooperate with EPA's and NJDEP's efforts to secure and ensure compliance with such Institutional Controls.

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

a. The Borough shall, within 15 days after the Effective Date, submit for EPA approval a notice to be filed regarding the Borough'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 CD requiring implementation of such remedy; and (3) identify the U.S. District Court in which the CD was filed, the name and civil action number of this case, and the date the CD was entered by the Court. The Borough 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 Borough shall, prior to entering into a contract to transfer all or any portion of the Borough's Affected Property, or 60 days prior to transferring all or any portion of the Borough'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, that the United States District Court has entered the CD (identifying the name and civil action number of this case and the date the CD was entered by the Court), that the proposed transferee may have O&M obligations under the CD; and

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

20. In the event of any Transfer of the Affected Property, unless the United States otherwise consents in writing, SDs shall continue to comply with their obligations under the CD, including their obligation to provide and/or 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 ICs.

21. Notwithstanding any provision of the CD, Plaintiffs retain all of their access authorities and rights, as well as all of its rights to require ICs, including

enforcement authorities related thereto, under CERCLA, RCRA, the Spill Act, the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq., and any other applicable federal or State statutes or regulations.

IX. FINANCIAL ASSURANCE

22. In order to ensure completion of the Work, including construction of the remedy but excluding O&M, Ford shall secure financial assurance, initially in the amount of $15,296,700 ("Estimated Cost of the Work Excluding O&M"), for the benefit of EPA. The financial assurance must be one or more of the mechanisms listed below, in a form substantially identical to the relevant sample documents available from EPA or under 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. Ford may use multiple mechanisms if it is 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 that SD meets the financial test criteria of ¶ 25 accompanied by a standby funding commitment, which obligates SD 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 a company: (1) that is a direct or indirect parent company of SD or has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with SD; and (2) can demonstrate to EPA's satisfaction that it meets the financial test criteria of ¶ 25.

23. For the purposes of ¶ 22, Ford has selected, and EPA has found satisfactory, as an initial financial assurance a demonstration that Ford meets the financial test criteria prepared in accordance with ¶ 22.e. Within 45 days after the Effective Date, or 45 days after EPA's approval of the form and substance of Ford's financial assurance,

whichever is later, Ford 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).

24. Financial Assurance Regarding O&M

a. In order to ensure completion of the O&M, Ford shall secure financial assurance for O&M initially in the amount of $2,320,400 ("Estimated Cost of the O&M") for the benefit of NJDEP. Financial assurance for the benefit of NJDEP shall be maintained throughout the O&M period in accordance with Subchapter 5 of the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26-5. Ford may use any one or any combination of the financial mechanisms set forth at N.J.A.C. 7:26C-5.2(h) 1 through 5, but cannot use the self-guarantee of N.J.A.C. 7:26C-5.2(h)6, which is not available for use as financial assurance required by N.J.A.C. 7:26C-5.3(c) for the operation, maintenance or inspection of any engineering control. Should the terms of this CD be more comprehensive than the requirements of the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26-1.1 et seq., the terms of the CD shall control.

b. For the purposes of ¶ 24.a, Ford has selected, and NJDEP has found satisfactory, as an initial financial assurance a letter of credit in the amount of $2,320,400. Within 45 days after the Effective Date, Ford shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the NJDEP-approved form of financial assurance and shall submit such mechanisms and documents to NJDEP, with a copy to EPA.

25. If Ford is seeking to provide financial assurance by means of a demonstration or guarantee under ¶ 22.e or 22.f, Ford must, within 45 days of the Effective Date:

a. Demonstrate that:

1) Ford or guarantor has:

i. Two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5; and

ii. Net working capital and tangible net worth each at least six times the sum of the Estimated Cost of the Work Excluding O&M and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

iii. Tangible net worth of at least $10 million; and

iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work Excluding O&M and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; or

2) Ford or its guarantor has:

i. A current rating for its senior unsecured debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's; and

ii. Tangible net worth at least six times the sum of the Work Excluding O&M and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

iii. Tangible net worth of at least $10 million; and

iv. Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the Estimated Cost of the Work Excluding O&M and the amounts, if any, of other federal, state, or tribal environmental obligations financially assured through the use of a financial test or guarantee; and

b. Submit to EPA for the affected SD or guarantor: (1) a copy of an independent certified public accountant's report of the entity's financial statements for the latest completed fiscal year, which must not express an adverse opinion or disclaimer of opinion; and (2) a letter from its chief financial officer and a report from an independent certified public accountant substantially identical to the sample letter and reports available from EPA or under the "Financial Assurance - Settlements" subject list category on the Cleanup Enforcement Model Language and Sample Documents Database at https://cfpub.epa.gov/compliance/models/.

26. If Ford is providing financial assurance by means of a demonstration or guarantee under ¶ 22.e or 22.f, Ford must also:

a. Annually resubmit the documents described in ¶ 25.b within 90 days after the close of Ford's or the guarantor's fiscal year;

b. Notify EPA within 30 days after Ford or the guarantor determines that it no longer satisfies the relevant financial test criteria and requirements set forth in this Section; and

c. Provide to EPA, within 45 days of EPA's request, reports of the financial condition of Ford or its guarantor in addition to those specified in ¶ 25.b; EPA may make such a request at any time based on a belief that Ford or the guarantor may no longer meet the financial test requirements of this Section.

27.

a. Ford shall diligently monitor the adequacy of the financial assurance required by ¶¶ 22 and 24. If Ford becomes aware of any information indicating that the financial assurance provided under this Section for the Estimated Cost of the Work Excluding O&M is inadequate or otherwise no longer satisfies the requirements of this Section, Ford shall notify EPA within 7 days of its receipt. 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 Ford of such determination. Ford shall, within 45 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 Ford, 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 90 days. Ford shall follow the procedures of ¶ 29 (Modification of Financial Assurance) in seeking approval of, and submitting documentation for, the revised or alternative financial assurance mechanism. Ford'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 CD, including, without limitation, the obligation of Ford to complete the Work in accordance with the terms of this CD.

b. Ford shall submit to the NJDEP annually from the date the financial assurance for the Estimated Cost of the O&M as established under Paragraph 24, an estimate of the future costs to operate, maintain and inspect all engineering controls to be used for O&M to insure protectiveness of the remedy required in this CD, on the "*Remediation Cost Review and RFS/FA Form*," or equivalent, available on the Department's website at www.nj.gov/dep/srp/srra/forms. If Ford is maintaining a remediation trust fund, line of credit, or an environmental insurance policy as NJDEP financial assurance, Ford shall also annually provide a written statement from the trustee, lender, or insurance company confirming the current value of the mechanism and confirming that the mechanism shall continue to remain in effect for the next consecutive 12-month period. Ford shall increase the financial assurance amount, pursuant to N.J.A.C. 7:26C-5.11(c), within 30 days after submission of any cost review or written notification that indicates that the cost to operate, maintain and inspect all engineering controls is greater than the NJDEP required financial assurance. Once a remedial action permit equivalency is obtained by Ford pursuant to N.J.A.C. 7:26C-5, Ford shall continue the cost reporting required above in accordance with N.J.A.C. 7:26C-5.10(b).

28. Access to Financial Assurance by EPA or NJDEP.

a. If EPA issues a notice of implementation of a Work Takeover under ¶ 63.b with respect to the Work Excluding O&M, 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 Excluding O&M; and/or (2) require that any funds guaranteed be paid in accordance with ¶ 28.d.

b. If NJDEP issues a notice of intent to draw and transfer demand in accordance with Subchapter 5 of the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26-5, with respect to the O&M, then, in accordance with any applicable financial assurance mechanism and/or related standby funding commitment, NJDEP is entitled to: (1) the performance of the O&M by another party; and/or (2) require that any funds guaranteed be paid in accordance with ¶ 28.e.

c. If EPA or NJDEP is notified by the issuer of a financial assurance mechanism that it intends to cancel such mechanism, and Ford 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 ¶ 28.f.

d. If, upon issuance of a notice of implementation of a Work Takeover under ¶ 63.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 Excluding O&M; or (2) the financial assurance is a demonstration of guarantee under ¶¶ 22.e or 22.f, then EPA is entitled to demand an amount, as determined by EPA, sufficient to cover the cost of the remaining Work Excluding O&M to be performed. Ford shall, within 10 days of such demand, pay the amount demanded as directed by EPA.

e. If, upon issuance of a notice of intent to draw and transfer demand in accordance with Subchapter 5 of the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26-5, NJDEP is unable for any reason to promptly secure the resources guaranteed under any applicable financial assurance mechanism, whether in cash or in kind, for the O&M, then NJDEP is entitled to demand an amount, as determined by NJDEP, sufficient to cover the cost of the remaining O&M to be performed. Ford shall, within 10 days of such demand, pay the amount demanded as directed by NJDEP.

f. Any amounts required to be paid under this ¶ 28 shall be, as directed by EPA or NJDEP, as appropriate: (i) paid to EPA or NJDEP in order to facilitate the completion of the Work Excluding O&M by EPA, or the completion of O&M by NJDEP, as appropriate, 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 Ringwood Mines/Landfill 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.

g. All EPA Work Takeover costs not paid under this ¶ 28 must be reimbursed as Future Response Costs under Section X (Payments for Response Costs).

All costs incurred by NJDEP not paid under this ¶ 28 must be reimbursed as NJDEP Future Cleanup and Removal Costs under Section X (Payments for Response Costs).

29. Modification of Amount, Form, or Terms of Financial Assurance.

a. Ford 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 ¶ 27.a and must include an estimate of the cost of the Work Excluding O&M; 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 Ford of its decision to approve or disapprove a requested reduction or change pursuant to this Paragraph. Ford may reduce the amount of the financial assurance mechanism only in accordance with: (a) EPA's written 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). Ford may change the form or terms of the financial assurance mechanism only in accordance with the approval or EPA. Any decision made by EPA on a request submitted under this Paragraph to change the form or terms of a financial assurance mechanism shall not be subject to challenge by Ford pursuant to the dispute resolution provisions of this CD 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, Ford shall submit to EPA documentation of the reduced, revised, or alternative financial assurance mechanism in accordance with ¶ 27.a.

b. Ford may, at any time, submit a written request to NJDEP on a form, found on the Department's website at www.nj.gov/dep/srp/srra/forms, to substitute another type of financial mechanism specified in Paragraph 24 for the existing financial mechanism. NJDEP shall return the original financial mechanism after such proof is provided that an acceptable alternate mechanism has been established. Following issuance of a remedial action permit equivalency, Ford may request to reduce the amount of the financial assurance. Any such request must be submitted to NJDEP in accordance with ¶ 27.b. NJDEP will notify Ford of its decision to approve or disapprove a requested reduction or change pursuant to this Paragraph. Ford may reduce the amount of the financial assurance mechanism only in accordance with NJDEP'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 NJDEP on a request submitted under this Paragraph to change the form or terms of a financial assurance mechanism shall not be subject to challenge by Ford pursuant to the dispute resolution provisions of this CD or in any other forum. Within 30 days after receipt of NJDEP's approval of, or the agreement or decision resolving a dispute relating to, the requested modifications pursuant to this Paragraph, Ford shall submit to NJDEP documentation of the reduced, revised, or alternative financial assurance mechanism in accordance with ¶¶ 24 and 27.b.

30. Release, Cancellation, or Discontinuation of Financial Assurance. Ford may release, cancel, or discontinue any financial assurance provided under this Section for the Estimated Cost of the Work Excluding O&M only: (a) if EPA issues a Certification of Work Completion under ¶ 3.7 (Certification of Work Completion) of 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 to Section XIII (Dispute Resolution). Subject to the provisions of ¶ 29.b, the financial assurance established for the O&M under ¶ 24 shall remain in place until the termination of the remedial action permit equivalency.

X. PAYMENTS FOR RESPONSE COSTS

31. **Payment by Ford for United States' Past Response Costs and NJDEP Past Cleanup and Removal Costs**.

a. Within 45 days after the Effective Date, Ford shall pay to EPA $3,599,997.77 in payment for Past Response Costs. Payment shall be made in accordance with ¶ 33 (Payment Instructions for SD).

b. **Deposit of Past Response Costs Payment.** The total amount to be paid by Ford pursuant to ¶ 31.a shall be deposited by EPA in the Ringwood Mines/Landfill 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.

c. **Payment of NJDEP Past Cleanup and Removal Costs.** Within 45 days after the Effective Date, Ford shall pay to the State $2,132,127 in reimbursement of NJDEP Past Cleanup and Removal Costs. Payment shall be made in accordance with ¶ 33.c (Payment Instructions for Ford).

32. **Payments by Ford for Future Response Costs and NJDEP Future Cleanup and Removal Costs**. Ford shall pay to EPA all Future Response Costs not inconsistent with the NCP.

a. On a periodic basis, EPA will send Ford a bill requiring payment that includes a SCORPIOS Report, which includes direct and indirect costs incurred by EPA, its contractors, subcontractors, and DOJ. Ford shall make all payments within 45 days after SD's receipt of each bill requiring payment, except as otherwise provided in ¶ 34, in accordance with ¶ 33 (Payment Instructions for SDs). In the event that a bill is not issued within one year of the effective date, and yearly thereafter, Ford may request a current SCORPIOS Report.

b. **Deposit of Future Response Costs Payments**. The total amount to be paid by Ford pursuant to ¶ 32.a shall be deposited by EPA in the Ringwood Mines/Landfill 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 Ringwood Mines/Landfill 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 SDs pursuant to the dispute resolution provisions of this CD or in any other forum.

c. **Payment of NJDEP Future Cleanup and Removal Costs.** Ford shall reimburse the NJDEP for all NJDEP Future Cleanup and Removal Costs. NJDEP will periodically bill Ford for these costs.

33. **Payment Instructions for Ford**.

a. For all payments subject to this ¶ 33, Ford shall make payment by by FedWire Electronic Funds Transfer ("EFT") to the United States Department of Justice account, in accordance with instructions provided to Settling Defendants by the Financial Litigation Unit (FLU) of the U.S. Attorney's Office for the District of New Jersey after the Effective Date. The payment instructions provided by the FLU will include a Consolidated Debt Collection System (CDCS) number, which shall be used to identify all payments required to be made in accordance with this CD. The FLU will provide the payment instructions to:

Colleen Liddell
Senior Environmental Engineer
Ford Motor Company
Environmental Quality Office
290 Town Center Drive, Suite 800
Dearborn, MI 48126
Ckoch1@ford.com

b. For each payment made under this ¶ 33.a., Ford shall send notices, including references to the CDCS, Site/Spill ID Number 02-62, and DJ Number 90-11-3-830/1, to the United States, EPA, and the EPA Cincinnati Finance Center, all in accordance with ¶ 85.

c. Ford shall pay the amount specified in ¶¶ 31.c and 32.c by check made payable to the "Treasurer, State of New Jersey." Payment, with invoice stub, shall be mailed to the address referenced on the invoice. In addition, Ford shall mail or otherwise deliver a copy of the payment and invoice to the Section Chief, Environmental Enforcement Section, Department of Law and Public Safety, Division of Law, Richard J. Hughes Justice Complex, 25 Market Street, P.O. Box 093, Trenton, New Jersey 08625-0093.

34. **Contesting Future Response Costs**.

a. Ford may submit a Notice of Dispute, initiating the procedures of Section XIII (Dispute Resolution), regarding any Future Response Costs billed under ¶ 32 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 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 Ford submits a Notice of Dispute, Ford shall pay all uncontested Future Response Costs to the United States within 30 days after SD's receipt of the bill requiring payment. Simultaneously, Ford shall 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. Ford 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, Ford shall pay the sums due (with accrued interest) to the United States within 7 days after the resolution of the dispute. If Ford prevails concerning any aspect of the contested costs, Ford 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. Ford shall be disbursed any balance of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with ¶ 33 (Payment Instructions for SD). 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 Ford's obligation to reimburse the United States for its Future Response Costs.

b. **Contesting NJDEP's Future Cleanup and Removal Costs.**

(1) Ford may contest NJDEP Future Cleanup and Removal Costs by submitting a written request to NJDEP, within 45 days after the billing date indicated on the cost invoice Ford received from NJDEP. Ford shall include the following information in a request for an oversight cost review:

(i) A copy of the invoice;

(ii) Payment of all uncontested charges;

(iii) A list of the specific cost charges contested.

Ford shall send to NJDEP, as provided in Section XX (Notices and Submissions), a copy of the transmittal letter and check paying the

uncontested NJDEP Future Cleanup and Removal Costs;

(iv) The factual questions at issue in each of the contested charges;

(v) The name, mailing address, email address, and telephone number of the person making the request; and

(vi) Information supporting the request or other written documents relied upon to support the request.

If any information required by the above or the payment required by (ii) above is not included in the request for a cost review, NJDEP shall deny the request.

(2) Upon the NJDEP's receipt of a request for a cost review, NJDEP shall attempt to resolve any of the factual issues in dispute. If NJDEP determines that a billed cost was incorrect, NJDEP shall adjust the cost and issue a corrected invoice or have the revision in the next invoice, which shall be due and payable according to the corrected or next invoice.

(3) NJDEP's decision shall be binding on Ford unless, within 10 days after receipt of the decision, Ford 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 CD.

(4) If NJDEP prevails in the dispute, Ford shall pay the sums due (with accrued interest) to the NJDEP within fourteen days after the resolution of the dispute. If Ford prevails concerning any aspect of the contested costs, Ford shall pay that portion of the costs (plus associated accrued State Interest) for which it did not prevail to NJDEP within seven days after the resolution of the dispute. All payments to NJDEP under this Paragraph shall be made in accordance with ¶ 33 (Payment Instructions for SD). The dispute procedures set forth in this Paragraph shall be the exclusive mechanism for resolving disputes regarding Ford's obligation to reimburse the NJDEP for NJDEP Future Cleanup and Removal Costs.

(5) If Ford does not file a request for a cost review within 45 days after the billing date shown on the invoice for NJDEP's costs, the full amount of the costs shall be due and owing. If the invoice is not paid, NJDEP may avail itself of such remedies or sanctions available to NJDEP by virtue of Ford's failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to ¶ 50 (Stipulated Penalty Amounts – Work).

c. **Interest**. In the event that any payment for Past Response Costs or for NJDEP Past Cleanup and Removal Costs or for Future Response Costs or for NJDEP Future Cleanup

and Removal Costs required under this Section is not made by the date required, Ford shall pay Interest, or State Interest, as applicable, on the unpaid balance. The Interest, or State Interest, as applicable, on Past Response Costs or NJDEP Past Cleanup and Removal Costs under this Paragraph shall begin to accrue on the Effective Date. The Interest, or State Interest, as applicable, on Future Response Costs or NJDEP Future Cleanup and Removal Costs shall begin to accrue on the date of the bill. The Interest, or State Interest, as applicable, shall accrue through the date of Ford's payment. Payments of Interest or State Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of Ford's failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to ¶ 50 (Stipulated Penalty Amounts – Work).

XI. INDEMNIFICATION AND INSURANCE

35. **SDs' Indemnification of the United States and NJDEP.**

a. The United States and the NJDEP do not assume any liability by entering into this CD or by virtue of any designation of an SD as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). SDs shall indemnify, save, and hold harmless the United States, NJDEP, 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 SDs, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on an SD's behalf or under their control, in carrying out activities pursuant to this CD, including, but not limited to, any claims arising from any designation of SD as EPA's authorized representatives under Section 104(e) of CERCLA. Further, each SD agrees to pay the United States and NJDEP all costs they incur 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 or NJDEP based on negligent or other wrongful acts or omissions of such SD, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this CD. Neither the United States nor NJDEP shall be held out as a party to any contract entered into by or on behalf of SDs in carrying out activities pursuant to this CD. Neither SDs nor any such contractor shall be considered an agent of the United States or NJDEP.

b. The United States and NJDEP shall give each SD notice of any claim for which the United States or NJDEP plan to seek indemnification pursuant to this ¶ 35, and shall consult with that SD prior to settling such claim.

36. SDs covenant not to sue and agree not to assert any claims or causes of action against the United States or NJDEP for damages or reimbursement or for set-off of any payments made or to be made to the United States or NJDEP, arising from or on account of any contract, agreement, or arrangement between any one or more of SDs 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, SDs shall indemnify, save, and hold harmless the United States and NJDEP with respect to any and all claims for

damages or reimbursement arising from or on account of any contract, agreement, or arrangement between SDs and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

37. **Insurance**. No later than 15 days before commencing any on-site Work, Ford shall secure, and shall maintain until the issuance of EPA's Certification of RA Completion in accordance with Section 3.6 of the Scope of Work commercial general liability insurance with limits of $1 million, for any one occurrence, and automobile liability insurance with limits of $1 million, combined single limit, and umbrella liability policy or excess liability insurance coverage with limits of liability of $10 million in excess of the required commercial general liability and automobile liability limits. The insurance will name the United States and the NJDEP as additional insureds with respect to all liability arising out of the activities performed by or on behalf of SDs pursuant to this CD. Prior to commencement of the Work, Ford shall provide to EPA certificates of such insurance and a copy of each insurance policy. Ford shall resubmit such certificates and, upon request or upon a change of terms of the policies, copies of policies each year on the anniversary of the Effective Date. For the purpose of this Paragraph, "a change of terms of the policies" means a change in any provision of the insurance policies, including the insurance agreement or an endorsement, other than a renewal of the policy term. If there is no change in terms of the policies, Ford shall submit annually, upon the anniversary of the Effective Date, a certification by the insurance carrier recounting any claims, notifications received, and/or payments made by the carrier that have or could exhaust or reduce the applicable policy limits required to be maintained under this Paragraph. If Ford 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, Ford need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor. Ford shall ensure that all submittals under this Paragraph identify the Ringwood Mines/Landfill Superfund Site and the civil action number of this case.

a. For the duration of this CD, SDs shall satisfy, or shall ensure that their 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 SDs in furtherance of this CD.

XII. FORCE MAJEURE

38. "Force majeure," for purposes of this CD, is defined as any event arising from causes beyond the control of SDs, of any entity controlled by an SD, or of SDs' contractors that delays or prevents the performance of any obligation under this CD despite SDs' best efforts to fulfill the obligation. The requirement that each SD exercises "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.

39. If any event occurs or has occurred that may delay the performance of any obligation under this CD for which SDs intend or may intend to assert a claim of force majeure, SDs 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 SDs first knew that the event might cause a delay. Within 7 days thereafter, SDs 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; SDs' rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of SDs, such event may cause or contribute to an endangerment to public health or welfare, or the environment. SDs shall include with any notice all available documentation supporting their claim that the delay was attributable to a force majeure. SDs shall be deemed to know of any circumstance of which SDs, any entity controlled by SDs, or SDs' contractors or subcontractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude SDs 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 ¶ 38 and whether SDs have exercised best efforts under ¶ 38, EPA may, in its unreviewable discretion, excuse in writing SDs' failure to submit timely or complete notices under this Paragraph.

40. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this CD 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 SDs in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify SDs in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

41. If an SD 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, such SD 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 SD complied with the

requirements of ¶¶ 39 and 40. If the SD carries this burden, the delay at issue shall be deemed not to be a violation by the SD of the affected obligation of this CD identified to EPA and the Court.

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

XIII. DISPUTE RESOLUTION

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

44. A dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute. Any dispute regarding this CD 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.

45. **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 SD involved in the dispute invokes the formal dispute resolution procedures of this Section by serving on the United States a 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 such SD. The Statement of Position shall specify SD's position as to whether formal dispute resolution should proceed under ¶¶ 46 (Record Review) or 47.

b. Within 30 days after receipt of SD's Statement of Position, EPA will serve on the SD involved in the dispute 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 ¶¶ 46 (Record Review) or 47. Within 14 days after receipt of EPA's Statement of Position, such SD may submit a Reply.

c. If there is disagreement between EPA and the SD as to whether dispute resolution should proceed under ¶¶ 46 (Record Review) or 47, the parties to the dispute shall follow the procedures set forth in the Paragraph determined by EPA to be applicable. However, if the SD involved in the dispute 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 ¶¶ 46 and 47.

d. The NJDEP shall receive all Statements of Position served by the Parties under ¶ 45. The NJDEP may elect, in its sole discretion, to participate in the dispute resolution procedures established in this Section.

46. **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 CD, and the adequacy of the performance of response actions taken pursuant to this CD. Nothing in this CD shall be construed to allow any dispute by SDs regarding the validity of the ROD's 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 ¶ 46.a. This decision shall be binding upon SDs, subject only to the right to seek judicial review pursuant to ¶¶ 46.c and 46.d.

c. Any administrative decision made by EPA pursuant to ¶ 46.b shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by SDs 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 CD. The United States, or as appropriate, NJDEP, may file a response to SDs' motion.

d. In proceedings on any dispute governed by this Paragraph, SDs 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 ¶ 46.a.

47. 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 ¶ 45. The Emergency and Remedial Response Division Director's decision shall be binding on SDs unless, within 10 days after receipt of the decision, SDs file 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 CD. The United States or as appropriate, NJDEP, may file a response to SDs' motion.

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

48. The invocation of formal dispute resolution procedures under this Section does not extend, postpone, or affect in any way any obligation of SDs under this CD, except as provided in ¶ 34 (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 ¶ 56. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this CD. In the event that the involved SD does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XIV (Stipulated Penalties).

XIV. STIPULATED PENALTIES

49. Each SD shall be liable for stipulated penalties in the amounts set forth in ¶¶ 50 and 51 to the United States and/or NJDEP, as appropriate, for failure to comply with the requirements of this CD specified below, unless excused under Section XII (Force Majeure). "Compliance" by SDs shall include completion of all activities and obligations, including payments, required under this CD, or any deliverable approved under this CD, in accordance with all applicable requirements of law, this CD, the SOW, and any deliverables approved under this CD and within the specified time schedules established by and approved under this CD. Ford shall be liable for stipulated penalties associated with compliance milestones listed in ¶ 50.b. The Borough shall be liable for stipulated penalties associated with compliance milestones listed in ¶¶ 50.b(7)-(11) if the Borough failed to timely respond to submissions by Ford to the Borough for the Borough's review provided there was a reasonable time period for the Borough to respond to submissions from Ford.

50. 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 ¶ 50.b:

Period of Noncompliance	Penalty Per Violation Per Day
1st through 14th day	$1,500
15th through 30th day	$3,000
31st day and beyond	$4,500

b. Compliance Milestones

(1) Payment of Past Response Costs – 45 days after Effective Date.

(2) Payment of NJDEP Past Cleanup and Removal Costs – 45 days after Effective Date.

(3) Payment of Future Response Costs – 45 days after receipt of bill and SCORPIOS Report from EPA.

(4) NJDEP Future Cleanup and Removal Costs – 45 days after receipt of bill from NJDEP.

(5) Establishment and maintenance of financial assurance in compliance with the timelines and other substantive and procedural requirements of Section IX (Financial Assurance).

(6) Award RA contract in accordance with the Statement of Work.

(7) Submission of a satisfactory Remedial Action Work Plan in accordance with the Statement of Work.

(8) Start of Construction in accordance with the Statement of Work.

(9) Submission of a satisfactory O&M Plan in accordance with the Statement of Work.

(10) Implementation of Institutional Controls in accordance with the Statement of Work.

(11) Submission of a satisfactory Remedial Action Report in accordance with the Statement of Work.

51. **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 ¶ 5.6(a) (Initial Submissions) or 5.6(b) (Resubmissions) of the SOW due to such material defect, then the material defect shall constitute a lack of compliance for

purposes of ¶ 49. The provisions of Section XIII (Dispute Resolution) and Section XIV (Stipulated Penalties) shall govern the accrual and payment of any stipulated penalties regarding SDs' submissions under this CD.

b. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate deliverables pursuant to the CD or SOW:

Period of Noncompliance	Penalty Per Violation Per Day
1st through 14th day	$1,000
15th through 30th day	$2,000
31st day and beyond	$3,000

52. In the event that EPA assumes performance of a portion or all of the Work pursuant to ¶ 63 (Work Takeover), Ford shall be liable for a stipulated penalty in the amount of $3,000,000. Stipulated penalties under this Paragraph are in addition to the remedies available under ¶¶ 28 (Access to Financial Assurance) and 63 (Work Takeover).

53. 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 ¶ 5.6 (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 SDs of any deficiency; (b) with respect to a decision by the Director of the Emergency and Remedial Response Division, EPA Region 2, under ¶¶ 46.b or 47.a of Section XIII (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that SD replies 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); or (d) under Paragraph 34.b (Contesting NJDEP Future Cleanup and Removal Costs), 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 CD shall prevent the simultaneous accrual of separate penalties for separate violations of this CD.

54. Following EPA's determination that an SD has failed to comply with a requirement of this CD, or NJDEP's determination that Ford has failed to comply with ¶¶ 50.b(2) or 50.b(4), EPA or NJDEP may give such SD written notification of the same and describe the noncompliance. EPA or NJDEP may send such SD a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA or NJDEP has notified the SD of a violation.

55. All penalties accruing under this Section shall be due and payable to the United States and/or NJDEP, as appropriate, within 45 days after such SD's receipt from EPA or NJDEP of a demand for payment of the penalties, unless such SD invokes the Dispute Resolution procedures under Section XIII (Dispute Resolution) or contests

NJDEP Future Cleanup and Removal Costs under ¶ 34.b within the 45-day period. All payments to the United States or NJDEP under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with ¶ 33 (Payment Instructions for SDs).

56. Penalties shall continue to accrue as provided in ¶ 53 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 or NJDEP, as appropriate, that is not appealed to this Court, accrued penalties determined to be owed shall be paid to EPA or NJDEP, as appropriate, within 30 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 or NJDEP, as appropriate, prevails in whole or in part, the SD filing such appeal shall pay all accrued penalties determined by the Court to be owed to EPA or NJDEP within 60 days after receipt of the Court's decision or order, except as provided in ¶ 56.c;

c. If the District Court's decision is appealed by any Party, the SD involved in the appeal shall pay all accrued penalties determined by the District Court to be owed to the United States or NJDEP, as appropriate, 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, the NJDEP, as appropriate, or to such SD to the extent that they prevail.

57. If an SD fails to pay stipulated penalties when due, such SDs shall pay Interest or State Interest, as appropriate, on the unpaid stipulated penalties as follows: (a) if such SD has timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest or State Interest, as appropriate, shall accrue from the date stipulated penalties are due pursuant to ¶ 56 until the date of payment; and (b) if such SD fails to timely invoke dispute resolution, Interest or State Interest, as appropriate, shall accrue from the date of demand under ¶ 55 until the date of payment. If an SD fails to pay stipulated penalties and Interest or State Interest when due, the United States or NJDEP, as appropriate, may institute proceedings to collect the penalties and Interest or State Interest.

58. The payment of penalties and Interest or State Interest, if any, shall not alter in any way SDs' obligations to complete the performance of the Work required under this CD.

59. Nothing in this CD shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or NJDEP, as appropriate, to seek any other remedies or sanctions available by virtue of SDs' violation of this CD 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 or NJDEP shall not seek civil penalties pursuant to Section 122(*l*) of CERCLA for any violation for which a stipulated penalty is provided in this CD, except in the case of a willful violation of this CD.

60. Notwithstanding any other provision of this Section, the United States or NJDEP may, in their unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this CD.

XV. COVENANTS BY PLAINTIFFS

61. **Covenants for SDs by Plaintiffs.**

a. **Covenants for SDs by United States**. Except as provided in ¶ 62 (General Reservations of Rights), the United States covenants not to sue or to take administrative action against SDs pursuant to Sections 106 and 107(a) of CERCLA for the Work, Past Response Costs, and Future Response Costs. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon the satisfactory performance by SDs of their obligations under this CD. These covenants extend only to SDs and do not extend to any other person.

b. **Covenants for SDs by NJDEP**. In consideration of the payment Ford is making pursuant to ¶¶ 31.c and 32.c, above, and except as otherwise provided in ¶ 62 (General Reservation of Rights), below, the NJDEP covenants not to sue or take administrative action against the SDs for reimbursement of NJDEP Past Cleanup and Removal Costs or NJDEP Future Cleanup and Removal Costs. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon the satisfactory performance by SDs of their obligations under this CD. These covenants extend only to SDs and do not extend to any other person.

62. **General Reservations of Rights**. The United States and NJDEP reserve, and this CD is without prejudice to, all rights against SDs with respect to all matters not expressly included within Plaintiffs' covenants. Notwithstanding any other provision of this CD, the United States and the NJDEP reserve all rights against SDs with respect to:

a. liability for failure by SDs to meet a requirement of this CD;

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 SDs when such ownership commences after signature of this CD by SDs;

d. liability based on the operation of the Site by SDs when such operation commences after signature of this CD by SDs and does not arise solely from SDs' performance of the Work;

e. liability based on SDs' 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 ROD, the Work, or otherwise ordered by EPA, after signature of this CD by SDs;

f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments as it relates to the United States;

g. criminal liability;

h. liability for violations of federal or state law that occur during or after implementation of the Work;

i. 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 ROD, but that cannot be required pursuant to ¶ 13 (Modification of SOW or Related Deliverables);

j. liability for additional operable units at the Site or the final response action;

k. liability for costs that the United States will incur regarding the Site but that are not within the definition of Future Response Costs, and liability for costs that the State will incur regarding the Site that are not within the definition of NJDEP Future Cleanup and Removal Costs;

l. liability for NJDEP Natural Resource Damages; and

m. liability for failure to comply with applicable State law and regulations subsequent to the Site being delisted by the EPA from the National Priorities List, including but not limited to, the Site Remediation Reform Act, N.J.S.A. 58:10C-1 to -29, and the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C, and the Technical Requirements for Site Remediation, N.J.A.C. 7:26E.

63. **Work Takeover**.

a. In the event EPA determines that SDs: (1) have ceased implementation of any portion of the Work; (2) are seriously or repeatedly deficient or late in their performance of the Work; or (3) are 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 SDs. Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide SDs a period of 10 days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

b. If, after expiration of the 10-day notice period specified in ¶ 63.a, SDs have 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 SDs in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this ¶ 63.b. Funding of Work Takeover costs is addressed under ¶ 28 (Access to Financial Assurance).

c. SDs may invoke the procedures set forth in ¶ 46 (Record Review), to dispute EPA's implementation of a Work Takeover under ¶ 63.b. However, notwithstanding SDs' 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 ¶ 63.b until the earlier of (1) the date that SDs remedy, 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 ¶ 46 (Record Review) requiring EPA to terminate such Work Takeover.

64. Notwithstanding any other provision of this CD, the United States and NJDEP retain all authority and reserve all rights to take any and all response actions authorized by law.

XVI. COVENANTS BY SDs

65. **Covenants by SDs**. Subject to the reservations in ¶ 67, SDs covenant not to sue and agree not to assert any claims or causes of action against the United States or the State with respect to the Work, past response actions regarding the Site, Past Response Costs, NJDEP Past Cleanup and Removal Costs, Future Response Costs, NJDEP Future Cleanup and Removal Costs, and this CD, 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 direct or indirect claim for reimbursement from the Spill Compensation Fund ("Spill Fund") within the meaning of N.J.S.A. 58:10-23.11k or N.J.A.C. 7:1l or the Sanitary Landfill Facility Contingency Fund ("Sanitary Landfill Fund") within the meaning of N.J.S.A. 13:1E-107 or N.J.A.C. 7:1I concerning the Site;

c. any claims under CERCLA §§ 107 or 113, RCRA Section 7002(a), 42 U.S.C. § 6972(a), the Spill Act, or other state laws regarding the Work, past response actions regarding the Site, Past Response Costs, NJDEP Past Cleanup and Removal Costs, Future Response Costs, NJDEP Future Cleanup and Removal Costs, and this CD; or

d. any other claims arising out of response actions in connection with the Work, past response actions regarding the Site, Past Response Costs, NJDEP Past Cleanup and Removal Costs, Future Response Costs, NJDEP Future Cleanup and Removal Costs, and this CD, 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.

66. Except as provided in ¶¶ 69 (Waiver of Claims by SDs) and 76 (Res Judicata and Other Defenses), the covenants in this Section shall not apply if the United States or NJDEP bring a cause of action or issue an order pursuant to any of the reservations in Section XV (Covenants by Plaintiffs), other than in ¶¶ 62.a (claims for failure to meet a requirement of the CD), 62.g (criminal liability), and 62.h (violations of federal/state law during or after implementation of the Work), but only to the extent that SDs' claims arise from the same response action, response costs, or damages that the United States or the NJDEP is seeking pursuant to the applicable reservation.

67. SDs reserve, and this CD 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 SDs' deliverables or activities. SDs reserve, and this CD is without prejudice to, claims against the State of New Jersey, subject to the New Jersey Tort Claims Act, N.J.S.A. 59:1-1 through -12-3; the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1 through 13-10; the New Jersey Constitution, N.J. Const. art. VIII, § 2, ¶2; or any other applicable provision of law, 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 State employee while within the scope of his office or employment under circumstances where the State, if a private person, would be liable to the claimant. Any such claim, however, shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a State employee as that term is defined in N.J.S.A. 59:1-3; nor shall any such claim concern the Site, including plaintiff NJDEP's oversight or approval of SDs' plans or activities relating to the remediation. The foregoing applies only to claims that SDs may bring pursuant to any statute other than the Spill Act, the Water Pollution Control Act and/or the Sanitary Landfill Act, and for which the waiver of sovereign immunity is found in a statute other than the Spill Act, the Water Pollution Control Act and/or the Sanitary Landfill Act.

68. Nothing in this CD 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). Additionally, nothing in this CD shall be deemed to constitute preauthorization of a claim against the Spill Fund, within the meaning of

N.J.S.A. 58:10-23.11k or N.J.A.C. 7:1J, or the Sanitary Landfill Fund, within the meaning of N.J.S.A. 13:1E-107 or N.J.A.C. 7:11.

69. **Waiver of Claims by SDs**.

a. SDs agree 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 and the Spill Act, that they may have:

(1) **De Micromis Waiver**. For all matters relating to the Site against any person where the person's liability to SDs 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; and

(2) **MSW Waiver**. For all matters relating to the Site against any person, where the person's liability to SDs with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of MSW at the Site, if the volume of MSW disposed, treated, or transported by such person to the Site did not exceed 0.2% of the total volume of waste at the Site.

b. **Exceptions to Waivers**.

(1) The waivers under this ¶ 69 shall not apply with respect to any defense, claim, or cause of action that SDs may have against any person otherwise covered by such waivers if such person asserts a claim or cause of action relating to the Site against such SD.

(2) The waiver under ¶ 69.a(1) (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.

(3) The waiver under ¶ 69.a(2) (MSW 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 MSW 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.

70. SDs agree 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

71. Except as provided in ¶ 69 (Waiver of Claims by SDs), nothing in this CD shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this CD. Except as provided in Section XVI (Covenants by SDs), each 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 each 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 CD diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action, as the case may be, and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2). Additionally, nothing in this CD diminishes the right of NJDEP, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3) or Section 8 of the Spill Act, N.J.S.A. 58:10-23.11g., to pursue such persons to obtain additional response costs/cleanup and removal costs and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2) or Section 7a.(2)(b) of the Spill Act, N.J.S.A. 58:10-23.11f.a.(2)(b).

72. The Parties agree, and by entering this CD this Court finds, that this CD constitutes a judicially-approved settlement pursuant to which SDs have, 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 NJDEP within the meaning of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2) and Section 7f.a.(2)(b) of the Spill Act, N.J.S.A. 58:10-23.11f.a.(2)(b), and are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA and N.J.S.A. 58:10-23.11f.a(2)(b), or as may be otherwise provided by law, for the "matters addressed" in this CD. The "matters addressed" in this CD are the Work, Past Response Costs, NJDEP Past Cleanup and Removal Costs, Future Response Costs, and NJDEP Future Cleanup and Removal Costs.

73. The Parties further agree, and by entering this CD this Court finds, that the complaint filed by the United States and NJDEP 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 CD

constitutes a judicially-approved settlement pursuant to which the SDs have, 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) and NJDEP within the meaning of Section 113(f)(3)(B) of CERCLA and Section 7f.a.(2)(b) of the Spill Act.

74. The SDs shall, with respect to any suit or claim brought by them for matters related to this CD, notify the United States and NJDEP in writing no later than 60 days prior to the initiation of such suit or claim.

75. The SDs shall, with respect to any suit or claim brought against them for matters related to this CD, notify in writing the United States and NJDEP within 10 days after service of the complaint on such SD. In addition, the SDs shall notify the United States and NJDEP 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.

76. **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, or NJDEP for injunctive relief, recovery of cleanup and removal costs or other appropriate relief relating to the Site, SDs 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 or NJDEP 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

77. SDs shall provide to EPA and NJDEP, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form, except for identical copies) (hereinafter referred to as "Records") within SDs' possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this CD, 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. SDs shall also make available to EPA and NJDEP, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

78. **Privileged and Protected Claims**.

a. SDs may assert that all or part of a Record requested by Plaintiffs is privileged or protected as provided under federal law and/or State law, in lieu of providing the Record, provided SDs comply with ¶ 78.b, and except as provided in ¶ 78.c.

b. If SDs assert a claim of privilege or protection, they shall provide Plaintiffs 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, SDs shall provide the Record to Plaintiffs in redacted form to mask the privileged or protected portion only. SDs shall retain all Records that they claim to be privileged or protected until Plaintiffs have had a reasonable opportunity to dispute the privilege or protection claim and any such dispute has been resolved in the SDs' favor.

c. SDs 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 SDs are required to create or generate pursuant to this CD.

79. **Business Confidential Claims**. SDs may assert that all or part of a Record provided to Plaintiffs 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). SDs shall segregate and clearly identify all Records or parts thereof submitted under this CD for which SDs 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 SDs 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 SD.

80. 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 CD.

81. Notwithstanding any provision of this CD, Plaintiffs retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, the Spill Act, and any other applicable federal or State statutes, rules or regulations.

XIX. RETENTION OF RECORDS

82. Until 10 years after EPA's Certification of Work Completion under ¶ 3.7 (Certification of Work Completion) of the SOW, each SD 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 materially relate to its liability under CERCLA or the Spill Act with respect to the Site, provided, however, that SDs who are potentially liable as owners or operators of the Site must retain, in addition, all Records that relate to the liability of any other person under CERCLA or the

Spill Act with respect to the Site. Each SD 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 each SD (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.

83. At the conclusion of this record retention period, each SD shall notify the United States and NJDEP at least 90 days before the destruction of any such Records. Upon request by the United States or NJDEP, and except as provided in ¶ 78 (Privileged and Protected Claims), the SD instead shall deliver any such Records to EPA, and if requested, NJDEP.

84. Each SD 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 that materially relate to its potential liability under CERCLA and the Spill Act (other than identical copies) regarding the Site since notification of potential liability by the United States or the State since the Site was placed on the NPL again on September 27, 2006, and that it has fully complied with any and all EPA and NJDEP 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

85. All approvals, consents, deliverables, modifications, notices, notifications, objections, proposals, reports, and requests specified in this CD must be in writing unless otherwise specified. Whenever, under this CD, 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 person(s) specified below at the address(es) 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 CD regarding such Party.

As to the United States:	EES Case Management Unit U.S. Department of Justice Environment and Natural Resources Division P.O. Box 7611 Washington, D.C. 20044-7611 eescdcopy.enrd@usdoj.gov Re: DJ # 90-11-3-830/1
As to EPA:	Director, Emergency and Remedial Response Division U.S. Environmental Protection Agency Region 2 290 Broadway New York, New York 10007
and:	Joseph Gowers EPA Remedial Project Manager U.S. Environmental Protection Agency Region 2 290 Broadway New York, New York 10007 gowers.joe@epa.gov (212) 637-4413
At to EPA Cincinnati Finance Center:	EPA Cincinnati Finance Center 26 W. Martin Luther King Drive Cincinnati, Ohio 45268 cinwd_acctsreceivable@epa.gov

As to NJDEP:

Section Chief
Environmental Enforcement Section
Department of Law and Public Safety
Division of Law
Richard J. Hughes Justice Complex
25 Market Street
P.O. Box 093
Trenton, NJ 08625-0093
(609) 633-8713

and:

Director
Division of Remediation Management
Department of Environmental Protection
401 East State Street
Mail Code 401-406
P.O. Box 420
Trenton, N.J. 08625-0420

As to FORD:

Colleen S. Liddell
Senior Environmental Engineer
Ford's Project Coordinator
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Environmental Quality Office
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ckoch1@ford.com

and:

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As to the BOROUGH OF RINGWOOD

Scott Heck, Manager,
Borough of Ringwood
60 Margaret King Avenue
Ringwood, New Jersey 07456
sheck@ringwoodnj.net
(973) 475-7101

Wanda Chin Monahan, Esq.
Law Offices of Wanda Chin Monahan, LLC
50 Cardinal Drive
Suite 102
Westfield, New Jersey 07090
wmonahan@monahanlawnj.com
(908) 588-7700

XXI. RETENTION OF JURISDICTION

86. This Court retains jurisdiction over both the subject matter of this CD and SDs for the duration of the performance of the terms and provisions of this CD 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 CD, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIII (Dispute Resolution).

XXII. APPENDICES

87. The following appendices are attached to and incorporated into this CD:

"Appendix A" is the ROD.

"Appendix B" is the SOW.

"Appendix C" is the description and/or map of the Site.

"Appendix D" is the ESD.

XXIII. MODIFICATION

88. Except as provided in ¶ 13 (Modification of SOW or Related Deliverables), material modifications to this CD, including the SOW, shall be in writing, signed by the United States, NJDEP, and SDs, and shall be effective upon approval by the Court. Except as provided in ¶ 13, non-material modifications to this CD, including the SOW, shall be in writing and shall be effective when signed by duly authorized representatives of the United States, NJDEP, and SD. 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 NJDEP with a reasonable opportunity to review and comment on the proposed modification.

89. Nothing in this CD shall be deemed to alter the Court's power to enforce, supervise, or approve modifications to this CD.

XXIV. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

90. This CD shall be lodged with the Court for at least 60 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 CD disclose facts or considerations that indicate that the CD is inappropriate, improper, or inadequate. SDs consent to the entry of this CD without further notice.

91. The NJDEP, in accordance with N.J.S.A. 58:10-23.11e.2, shall arrange for written notice of the CD to all other potentially responsible parties of whom NJDEP had notice as of the date NJDEP published notice of the proposed settlement in this matter in the New Jersey Register. NJDEP shall publish notice of this CD in the New Jersey Register and on NJDEP's web site for public comment for a period of 60 days. In accordance with N.J.S.A. 58:10-23.11e.2, such notice shall include the following information: a.) the caption of this case; b.) the name and location of the Ringwood Mines/Landfill Superfund Site; c.) the name of the Settling Defendant; d.) a summary of the terms of this CD; and e.) that there are 60 days to comment on the proposed CD.

92. NJDEP reserves the right to withdraw or withhold its consent to this CD if NJDEP receives information that discloses facts or considerations that indicate to NJDEP in its sole discretion, that the CD is inappropriate, improper, or inadequate.

93. If for any reason the Court should decline to approve this CD 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

94. The undersigned representative of the SDs, the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, each representative of NJDEP and the Deputy Attorney General for the Office of the Attorney General, State of New Jersey, certify that he or she is fully authorized to enter into the terms and conditions of this CD and to execute and legally bind such Party to this document.

95. SDs agree not to oppose entry of this CD by this Court or to challenge any provision of this CD unless the United States and NJDEP have notified SDs in writing that they no longer support entry of the CD.

96. SDs 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 CD. SDs agree 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. SDs need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this CD.

XXVI. FINAL JUDGMENT

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

98. Upon entry of this CD by the Court, this CD shall constitute a final judgment between and among the United States, NJDEP, and SDs.

SO ORDERED THIS __ DAY OF _____, 2019.

_____
United States District Judge

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE UNITED STATES OF AMERICA:

3/6/19
Date

Jeffrey Bossert Clark
Assistant Attorney General
U.S. Department of Justice
Environment and Natural Resources Division
Washington, D.C. 20530

3/7/19
Date

Natalie G. Harrison
Trial Attorney
U.S. Department of Justice
Environment and Natural Resources Division
Environmental Enforcement Section
P.O. Box 7611
Washington, D.C. 20044-7611

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE ENVIRONMENTAL PROTECTION AGENCY:

3.27.19
Date

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

3/27/19
Date

Leena Raut
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region 2
290 Broadway
New York, New York 10007

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE NEW JERSEY ATTORNEY GENERAL:

Gurbir S. Grewal
Attorney General of New Jersey
Attorney for the New Jersey Department of Environmental Protection and Administrator, New Jersey Spill Compensation Fund

By:

3/27/19
Date

Louis G. Karagias
Deputy Attorney General

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE NEW JERSEY SPILL COMPENSATION FUND:

3-13-19
Date

David E. Haymes
Administrator
New Jersey Spill Compensation Fund

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION:

_____
Date

_____
Ray Bukowski
Assistant Commissioner
Natural and Historic Resources

3-13-19
Date

/Kevin F. Kratina
Kevin F. Kratina
Assistant Director
Enforcement and Information Support Element

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION:

3/26/19
Date

Ray Bukowski
Assistant Commissioner
Natural and Historic Resources

Date

Kevin F. Kratina
Assistant Director
Enforcement and Information Support Element

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR FORD MOTOR COMPANY:

2/12/19
Date

Name (print): Corey M. MacGillivray
Title: Assistant Secretary
Address: One American Road, Dearborn, MI 48126

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Julie Ludington
Title: Attorney
Company: Ford Motor Company
Address: One American Road
Dearborn, MI 48126
Phone: (313) 323-7347
email: Julie.Ludington@ford.com

Signature Page for CD regarding the Ringwood Mines/Landfill Superfund Site

FOR THE BOROUGH OF RINGWOOD:

12-12-18
Date

Name (print): Scott Heck
Title: Borough Manager
Address: 60 Margaret King Avenue
Ringwood, NJ 07456

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): Scott Heck
Title: Borough Manager
Company: Borough of Ringwood
Address: 60 Margaret King Avenue
Ringwood, NJ 07456
Phone: 973-475-7101
email: sheck@ringwoodnj.net

EXHIBIT A

RECORD OF DECISION

RECORD OF DECISION

Ringwood Mines/Landfill Superfund Site
Operable Unit Two

Borough of Ringwood
Passaic County, New Jersey

June 30, 2014

PREPARED BY:

U.S. Environmental Protection Agency
Region II

255080

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Ringwood Mines/Landfill Superfund Site
Borough of Ringwood, Passaic County, New Jersey
Operable Unit Two (OU2)

Superfund Site Identification Number: NJD980529739

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedy to address waste contained in three disposal areas of the Ringwood Mines/Landfill Superfund Site (Site), located in the Borough of Ringwood, Passaic County, New Jersey. These three disposal areas, known as the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas, comprise OU2 of the Site. The selected remedy was chosen by the U.S. Environmental Protection Agency (EPA) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§9601-9675, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record file for this Site (see Appendix IV).

The New Jersey Department of Environmental Protection (NJDEP) was consulted on the planned remedy for OU2 in accordance with CERCLA §121(f), 42 U.S.C. §9621(f), and it concurs with the selected remedy (see Appendix V).

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The response action described in this ROD addresses waste contained in the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas of the Site. It represents the second of three planned remedial phases, or operable units, for the Site. The third phase (OU3) addresses the groundwater across the Site. A remedial investigation/feasibility study for OU3 is nearing completion and will serve as the basis for the selection of a remedy for Site-wide groundwater. A remedy for OU1 was originally intended to comprehensively address contamination at the Site. However, subsequent to the completion of the OU1 remedy and deletion of the Site from the National Priorities List, additional contamination was found at the Site that resulted in the need for further evaluation of conditions at the Site and implementation of OU2 and OU3.

The major components of the Selected Remedy for each of the disposal areas include the following:

Peters Mine Pit Area

- Dewatering of the Peters Mine Pit pond with proper disposal of removed water;

- Excavation of soil and fill material from the fill area surrounding the Peters Mine Pit down to native soil, bedrock or the water table, whichever is encountered first. If drums of waste or paint sludge are encountered, the excavation would continue until these materials are removed. Segregated non-hazardous soil or fill from this excavation, if suitable, may be reused as fill for the excavated area and/or the Peters Mine Pit; all other excavated material will be disposed of off-site at an appropriately permitted facility;

- Placement and compaction of a sufficient amount of clean fill in the Peters Mine Pit to raise the elevation to a level at least two feet above the average surface water elevation of the removed pond. Debris-free and non-hazardous mine tailings from the O'Connor Disposal Area (OCDA) may also be used as fill for this purpose in lieu of importing clean fill from an off-site source;

- Placement and compaction of clean fill, as needed, to fill in and/or level off the excavated area surrounding the Peters Mine Pit;

- Recontour and take other measures, as needed, to prepare the surface of the Peters Mine Pit area to ensure that it provides an adequate base for a geotextile fabric and subsequent cap;

- Installation of a geotextile fabric over the fill materials in the Peters Mine Pit Area. This will be followed by the placement of a sufficient amount of clean fill and topsoil on top of the fabric to cap the Peters Mine Pit and elevate the center of the cap to a level which is at least three feet above that of the perimeter area and, thereby, create positive drainage away from the center of the cap onto the perimeter area and then away from this area onto surrounding terrain;

- Restoration of the Peters Mine Pit Area with a variety of trees and other vegetation which are indigenous to the Ringwood area, with the intent of making this an area that can be used for recreational purposes as part of Ringwood State Park;

- Implementation of institutional controls, such as deed notices, to prevent use of the capped area for any purposes other than conservation land/recreational activities;

- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and

- Monitoring of groundwater quality in the Peter's Mine Pit Area until a groundwater remedy is selected for the Site.

Cannon Mine Pit Area

- Consolidation of shallow fill materials located around the Cannon Mine Pit into the pit;
- Placement and compaction of clean fill material in the Cannon Mine Pit, as necessary to raise the grade to promote drainage away from the pit;
- Excavation and off-site disposal of any drums of waste that may be encountered during consolidation and grading of fill material;
- Installation of a permeable engineered soil cap, consisting of a geotextile fabric and a minimum of eighteen inches of clean soil and six inches of topsoil, over the Cannon Mine Pit;
- Restoration of the Cannon Mine Pit Area with vegetation in order to stabilize the surface of the soil cap;
- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;
- Implementation of institutional controls, such as deed notices, to protect the integrity of the permeable cap;
- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and
- Monitoring of groundwater quality in the Canon Mine Pit Area until a groundwater remedy is selected for the Site.

O'Connor Disposal Area

- Excavation of all soil/fill material in the OCDA down to the top of the underlying mine tailings with disposal and/or recycling of all of the excavated material at off-site permitted disposal facilities. Debris-free and non-hazardous mine tailings underlying the fill material may be used as fill material for the Peters Mine Pit;
- Placement of at least six inches of topsoil throughout the excavated area to enable revegetation of the OCDA;
- Restoration of any wetlands in the OCDA that are disturbed during implementation of the

remedy, in coordination with the New Jersey Department of Environmental Protection's (NJDEP's) Land Use Program;

- Monitoring of groundwater quality in the OCDA until a groundwater remedy is selected for the Site.

The Borough of Ringwood owns the land which comprises the OCDA. The Borough has informed EPA that it wishes to construct a new recycling center on the OCDA, and that it has also taken steps towards achieving that goal. The Borough has passed a resolution to construct the new recycling center; it has hired an engineering firm to prepare detailed engineering plans; it is seeking financing for the planned recycling center; and it is seeking the approvals needed to construct the new recycling center at the OCDA. Given this, EPA has identified a contingency remedy for the OCDA which would accommodate the Borough's plans to reuse the OCDA as the site for the new Borough recycling center EPA will select the contingency remedy and appropriately document the selection of the contingency remedy if the following occurs:

(A) The Borough provides EPA with the following within six months of the date of this ROD: (1) detailed engineering plans for the new recycling center; (2) financial assurance(s) indicating that sufficient funds will be available for construction of the recycling center; and (3) assurances and supporting documentation indicating that the construction of the contingency remedy, including the recycling center, can and will be completed within either a shorter or, at least within a comparable timeframe than it would take to implement the selected remedy, described above; and

(B) EPA determines that the information and assurance(s) that the Borough has submitted to EPA, as described above, are sufficient to allow the contingency remedy to be implemented.

The major components of the contingency remedy for the OCDA include:

- Consolidation of fill from the fringe areas of the OCDA to the center of this area to provide level land that would permit reuse of this area;

- Installation of a minimum two-foot thick engineered permeable soil cap over the consolidated fill materials, which will consist of a geotextile fabric, eighteen inches of clean soil and six inches of top soil;

- Placement of six inches of clean fill in excavated areas beyond the engineered cap where soil/fill was moved for consolidation under the cap to ensure proper drainage and a suitable substrate for planting;

- Revegetation of the engineered soil cap and the surrounding fill areas;

- Restoration of wetlands in the OCDA disturbed during implementation of the selected remedy in coordination with the NJDEP's Land Use Program;

- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;

- Implementation of institutional controls, such as deed notices, to maintain the integrity of the cap;

- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and

- Monitoring of groundwater quality in the OCDA until a groundwater remedy is selected for the Site.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in Section 121 of CERCLA, 42U.S.C. § 9621. It is protective of human health and the environment, meets a level of control of the hazardous substances, pollutants and contaminants which meets the federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, is cost effective and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. The selected remedy may satisfy the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment), as any paint sludge or contents of drums excavated as part of this remedy may require treatment/stabilization prior to disposal. In-situ stabilization of the contaminated fill material in the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas is the only treatment technology determined to be potentially viable for treatment of the fill. However, EPA has determined that implementation of this technology is not practicable, due to the depth of disposal and the heterogeneous nature of the fill.

Because the selected remedy for OU2 will result in hazardous substances, pollutants, or contaminants remaining above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted no less often than once every five years to ensure that the remedial action remains protective of human health and the environment.

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 this 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

Operable Unit Two Risks" section.

- Cleanup levels established for chemicals of concern and the basis for these levels can be found in the "Remedial Action Objectives" section.

- Current and reasonably anticipated future land use assumptions used in the baseline risk assessment and ROD can be found in the "Current and Potential Future Site and Resource Uses" section.

- Estimated capital, operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected can be found in the "Description of Alternatives" section.

- Key factors 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 decisions) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

AUTHORIZING SIGNATURE:

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

June 30, 2014
Date

RECORD OF DECISION

DECISION SUMMARY

Ringwood Mines/Landfill Superfund Site
Ringwood Borough, Passaic County
New Jersey

U.S. Environmental Protection Agency
Region II
New York, New York
June 2014

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SITE NAME, LOCATION AND BRIEF DESCRIPTION

The Ringwood Mines/Landfill Superfund Site (Site), EPA ID# NJD980529739, consists of approximately 500 acres in a historic iron mining district in the Borough of Ringwood, Passaic County, New Jersey (see Appendix I, Figure 1). The Site, which is approximately 1.5 miles long and 0.5 miles wide, includes forested areas, areas of overgrown vegetation, abandoned iron mine pits and shafts, and a closed municipal landfill. Portions of the Site are currently used as State of New Jersey parkland (Ringwood State Park), utility corridors (Public Service Electric & Gas and Rockland Electric Company), Borough of Ringwood facilities, including a Recycling Center and a Public Works yard, a power sub-station and open space (Borough of Ringwood property). In addition, 48 residential properties are dispersed throughout the Site. Residents living within the boundaries of the Site currently receive their drinking water from the municipal water supply, which obtains water from well fields located in a different watershed approximately two miles southeast of the Site. The Site is drained by four brooks that ultimately lead to the Wanaque Reservoir, located approximately one mile south of the Site. The Wanaque Reservoir serves as a source of drinking water for over two million New Jersey residents.

United States Census Bureau records indicate that 866 people live within one mile of the Site. At least 200 people are estimated to live within the 48 residences located within the Site boundaries. Many of the residents living within the boundaries of the Site are members of the Ramapough Lenape Indian Nation, which is recognized as a Native American tribe by the State of New Jersey. Members of this community have strong ties to the land and hunt game and consume vegetation gathered from the Site.

EPA has been designated as the lead agency for cleanup of the Site, with NJDEP functioning in a support role. Investigations and cleanup actions conducted at the Site have been primarily funded by the Ford Motor Company (Ford), which has been identified as a potentially responsible party (PRP).

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The land which comprises the Site has been utilized for the mining of iron ore almost continuously from the mid-1700s to the early 1900s. Mining operations conducted at the Site consisted of the crushing and grinding of the iron ore, with magnetic separation of the iron from the other ore constituents (tailings). It has been reported that much of the mine tailings were sold off as road dressing. However, mine tailings are found throughout the Site, including in a former mining pit (Peters Mine Pit) and a former low-lying area (O'Connor Disposal Area) which was utilized for the settlement of waste mine tailings from wet ore processing operations.

In January 1965, the Ringwood Realty Corporation, a wholly-owned subsidiary of Ford, purchased more than 400 acres at the Site. Records indicate that in 1967, the Ringwood Realty Corporation entered into a contract with the O'Connor Trucking and Haulage Corporation for the disposal of wastes generated at the Ford factory located in Mahwah, New Jersey. EPA believes that O'Connor Trucking disposed of various waste which it received from Ford, including plant trash, paint sludge, drummed waste and other non-liquid plant wastes, at the Peters Mine Pit, the

Cannon Mine Pit and the O'Connor Disposal Area (OCDA) at the Site (see Appendix I, Figure 2).

In 1969, the Ringwood Realty Corporation began selling or donating portions of the Site. In 1970, 290 acres of the Site were donated to the Ringwood Solid Waste Management Authority. During the same year, additional acreage was sold to the Public Service Electric and Gas Company for use as a transmission line right of way. In 1973, 109 acres were donated to NJDEP and this area was added to the Ringwood State Park. In that same year, Housing Operation with Training Opportunity (HOW TO) a New Jersey not-for-profit corporation, accepted the donation of over 35 acres of the Site. It is believed that by December 21, 1973, the Ringwood Realty Corporation no longer owned any land at the Site.

The results of a July 1982 Site Inspection conducted by NJDEP identified levels of benzene, ethylbenzene, and xylene in water samples collected from the Peters Mine Airshaft. These results led to the Site's inclusion on the National Priorities List (NPL) in 1983, making it eligible for Superfund cleanup.

In March 1984, Ford entered into an Administrative Order on Consent (AOC) with EPA which required the performance of a Remedial Investigation (RI) to determine the nature and extent of contamination at the Site. The required RI was conducted by Ford's contractor in four phases between March 1984 and April 1988. In June 1987, EPA issued Unilateral Orders (UAOs) to Ford which required the removal and off-site disposal of paint sludge and associated soil, and the performance of a Feasibility Study (FS) to evaluate potential cleanup options for any contamination remaining at the Site. Pursuant to these UAOs, Ford completed a FS and removed over 7,000 cubic yards of paint sludge and associated soil from the Site in 1988. As part of this removal, surficial deposits of paint sludge were removed from the northern portion of the Site near the Peters Mine Pit and the O'Connor Disposal Areas, and from an area near the Cannon Mine Pit.

In September 1988, EPA issued a Record of Decision (ROD) which selected long-term monitoring of groundwater and surface water as the remedy for the Site. The ROD noted that the known areas of paint sludge had been removed from the Site.

Additional paint sludge deposits and drums were identified in the OCDA in 1989, prompting the removal of 600 cubic yards of paint sludge and 54 drum remnants in 1990. Some of the drum contents were reported to have contained polychlorinated biphenyls (PCBs) at concentrations in excess of 50 parts per million (ppm).

In 1994, EPA deleted the Site from the NPL believing that all paint sludge and drums of hazardous substances had been removed from the Site. The deletion was further supported by the determination that groundwater at the Site did not pose an unacceptable threat to human health and the environment.

From 1990 through 1995, Ford conducted a five-year Environmental Monitoring Program which provided for the sampling of monitoring wells and potable wells in the area of the Site. The

results of this program indicated that groundwater contaminant levels had been reduced since paint sludge had been removed from the Site.

In 1995, EPA was notified by a local resident of additional paint sludge located in a utility right-of-way near the Cannon Mine Pit Area, prompting the removal of an additional five cubic yards of paint sludge. In 1998, another resident notified EPA of the presence of paint sludge in the OCDA, prompting the removal of an additional 100 cubic yards of paint sludge and soil.

In September 2003, representatives of the Upper Ringwood residents wrote to EPA regarding their concern over past exposures and paint sludge remaining at the Site, but provided no details regarding the location of remaining paint sludge at that time. Additional paint sludge areas were subsequently identified during an April 2004 Site visit arranged by the residents' representatives.

In December 2004, Ford began the voluntary removal of surficial pockets of paint sludge identified at the Site. The discoveries of additional significant quantities of paint sludge at the Site prompted EPA to restore the Site to the NPL in September 2006. Ford has removed over 53,500 tons of paint sludge and associated soil from 15 distinct areas of the Site, in addition to the OCDA and the Peters Mine Pit Area, since December 2004.

In September 2005, Ford signed an AOC which requires the performance of an additional RI and risk assessment for the Site. In May 2010, Ford signed an AOC which requires the performance of FSs for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas of the Site, as well as Site-Related Groundwater Contamination. The Borough of Ringwood, which has also been identified as a PRP for the Site, declined to enter into the RI/FS AOC with EPA. EPA then issued a Unilateral Administrative Order to the Borough mandating that the Borough participate and cooperate with Ford in doing the RI/FSs for the Site. Final RI and FS Reports for the Peters Mine Pit, Cannon Mine Pit and the O'Connor Disposal Areas were submitted to EPA in 2012 and 2013.

The Site historically has contained and presently contains significant amounts of buried and surficial household wastes. From 1972 through 1976, the Borough of Ringwood operated a municipal landfill at the Site. Investigations conducted at the Site indicated that areas of the Site other than this municipal landfill were also used for the disposal of household wastes. Household refuse and construction debris was detected in 57 percent of test pits installed at the Site as part of a Site-wide Test Pit Investigation which was conducted in 2006 and 2007.

Due to the extensive mining activities formerly conducted at the Site, subsidence issues have historically been a concern. Subsidence issues reportedly occurred at the Site in 1961, 1979, 1998 and again in 2005, when a sinkhole formed on a residential property located about 600 feet from a paint sludge disposal area. In 2006, additional sinkholes formed between two residential properties located near the former Cannon Mine Pit. Investigations conducted on these properties identified the presence of shallow voids related to mining activities, resulting in the Borough of Ringwood declaring the properties uninhabitable. EPA has required that vibration monitoring be conducted during performance of remedial activities in areas near mine workings to mitigate the possibility of work-related subsidence issues.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI and FS Reports for the Peters Mine Pit, Cannon Mine Pit and the O'Connor Disposal Areas, and EPA's Proposed Plan for cleanup of these disposal areas of the Site were released to the public for comment on October 2, 2013. These documents were made available to the public in the administrative record file maintained at the Ringwood Public Library, located at 30 Cannici Drive, Ringwood, New Jersey and in the EPA Region II Records Center at 290 Broadway, New York City. A notice of availability of the above-referenced documents was published in The Record and The Herald News on October 2, 2013.

A public comment period on these documents was originally scheduled to extend from October 2, 2013 through December 2, 2013. However, EPA received requests from the public to extend the public comment period to allow adequate time for consideration of and comment on the Proposed Plan. In response to these requests, EPA provided two extensions to the public comment period, which resulted in a public comment period that extended from October 2, 2013 through February 5, 2014.

In addition, EPA held a public meeting on November 7, 2013 at 7:00 pm at the Martin J. Ryerson Middle School in Ringwood, New Jersey to present the findings of the RI/FSs and EPA's Proposed Plan to the community and local officials. At this meeting, representatives of EPA answered questions concerning the remedial alternatives developed as part of the RI/FSs. Responses to comments received by EPA at this public meeting and in writing during the public comment period are included in the Responsiveness Summary (see Appendix VI).

In order to foster community involvement at the Site, EPA has facilitated the formation of a Community Advisory Group (CAG), comprised of community members, local officials and other Site stakeholders. Representatives of EPA and NJDEP routinely attend CAG meetings, which have generally been held on a monthly basis, in order to share Site information with the community. Furthermore, Site-related documents, such as the above-referenced RI and FS reports, have been shared with the CAG and their technical advisor prior to finalization in order to allow for consideration of their concerns.

In response to concerns raised by the Upper Ringwood community regarding the potential of adverse Site impacts, in July 2013, EPA finalized an Environmental Justice (EJ) Assessment for the Site. The EJ Assessment, a draft of which was released for public comment, concluded that the Upper Ringwood community had been adversely impacted by the Site, and recommended actions that could be taken by EPA and the State and local government to help identify and address potential impacts. As noted in the Addendum to the Environmental Justice Assessment, EPA and other government entities have taken steps to address all of the recommendations identified in the EJ Assessment including; restoration of the Site to the NPL, establishment of a CAG, facilitation of the availability of a Technical Assistance Grant (TAG), closer EPA/NJDEP coordination on Site cleanup efforts; facilitation of the collection of health data and improved communication with Site stakeholders.

SCOPE AND ROLE OF OPERABLE UNIT

EPA often segregates cleanup activities at a site into different phases or operable units (OUs), so that cleanup of environmental media or areas that have been characterized can occur while the nature and extent of contamination in other media or areas is being investigated. Such a phased approach provides for site contamination to be addressed in a more expeditious manner. In keeping with this approach, EPA is addressing cleanup of the Site through immediate actions to address imminent threats to human health, and three phases of long-term cleanup or OUs.

The Site was originally intended to be addressed as a single OU complemented by removal actions. In September 1988, EPA issued a ROD, now designated as OU1, for the entire Site. The ROD selected long-term monitoring of groundwater and surface water as the remedy for the Site. The Site was deleted from the NPL in 1994. However, additional significant paint sludge areas were subsequently identified, prompting EPA to restore the Site to the NPL in 2006.

Subsequent to the restoration of the Site to the NPL, EPA created two additional operable units, OU2 and OU3. OU2, which is the subject of this ROD, addresses waste, fill material and soil located in the Peters Mine Pit, Cannon Mine Pit and the O'Connor Disposal Areas. The FSs for these areas of concern evaluate a range of remedial options to limit direct exposure to contaminated soil and fill material and to mitigate their potential to serve as a source of contamination to groundwater and surface water.

Groundwater contamination across the entire Site is being addressed as OU3. A RI/FS for OU3 is nearing completion and will serve as the basis for the selection of a remedy for Site-wide groundwater. That remedy will address long-term groundwater monitoring for the entire Site. In the interim, continued groundwater monitoring would be implemented as a component of the remedial alternatives being proposed for the Peters Mine Pit, Cannon Mine Pit and the OCDA. EPA anticipates that implementation of the OU2 remedy will be consistent with future OU3 remedial actions.

OUs 1, 2 and 3 are being complemented by removal actions. Paint sludge and associated soil contamination located on non-residential properties outside of the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas have been and/or are being addressed by Ford. Ford has removed over 53,500 tons of paint sludge and associated soil from 15 distinct areas of the Site, in addition to the OCDA and the Peters Mine Pit Area, since December 2004.

In addition, investigation and cleanup of residential properties at the Site has been conducted by EPA and the NJDEP under CERCLA's removal authority. In 2010 the NJDEP obtained access to 18 residential properties at the Site in order to conduct investigations for Site-related contamination. NJDEP conducted soils investigations on these properties in 2010 and 2011. The results of these investigations indicated the presence of elevated levels of lead on some of these properties. In the Fall of 2011, EPA initiated a removal action to delineate any contamination which may exist on additional residential properties at the Site, and to remove any lead contaminated soils and paint sludge identified on the residential properties. A total of 37 residential properties were assessed by EPA as part of this removal action, and lead-contaminated soil or paint sludge was removed from 23 of these properties.

SUMMARY OF SITE CHARACTERISTICS

The 500-acre Site is located in the northern portion of the Borough of Ringwood, Passaic County, New Jersey. The Site terrain is mountainous with peaks up to 900 feet above sea level and valleys which are generally below 500 feet in elevation. Bedrock in the valleys and other topographically low areas is covered by overburden which consists of unconsolidated and reworked glacial deposits and weathered bedrock. Groundwater at the Site occurs in both the overburden and bedrock.

The Peters Mine Pit Area is located in the north central part of the Site and is bound to the north by Park Brook. Most of the Peters Mine Pit Area falls within the Ringwood State Park, and is expected to remain in use as part of the state park in the future. From 1967 through 1971, the 375-foot long, 200-foot wide and 90-foot deep mine pit was filled with waste, including paint sludge, from Ford's Mahwah facility. Aerial photographs from 1973 indicate that the Peters Mine Pit had been filled to the level of the surrounding ground surface and covered with soil. Since this time, settling of the fill in this area has occurred and a 300-foot long pond currently occupies what was once the deepest part of the mine pit. This pond is believed to be an expression of the water table. The direction of groundwater flow in the Peters Mine Pit Area in both the overburden and bedrock is generally to the southeast. Overburden groundwater discharges to area streams, including the nearby Park Brook.

The Cannon Mine Pit Area is located in the southwestern part of the Site near a cul-de-sac at the southern end of Van Dunk Lane. The Cannon Mine Pit was reportedly 180 feet long, 140 feet wide and 200 feet deep when mining operations ceased. Attempts were made to blast the pit closed when Ford purchased the property, which resulted in reducing the depth of the pit to approximately 60 feet. During the period of Ford ownership, the pit was reportedly filled to the ground surface with waste from Ford's Mahwah facility. Only minimal settling of the fill material has been noted in this area. Records indicate that there was a shaft at the base of the pit which connected to other smaller mining pits, and an elevator shaft which is located approximately 500 feet east of the Cannon Mine Pit. The opening of the 500-foot deep elevator shaft is currently sealed with sections of railroad track and a concrete slab, and is enclosed by a chain-link fence. Groundwater in the Cannon Mine Pit Area occurs in both shallow and deeper bedrock. Topographic and groundwater elevation data collected at the Site indicates that groundwater in the shallow bedrock discharges to the Mine Brook which is located to the west and south of the Cannon Mine Pit Area.

The 12-acre OCDA is located to the south of the Peters Mine Pit Area along the Peters Mine Road. During the period of active mine operations, this area was utilized for the settling of waste mine tailings from wet ore processing operations. Subsequently, during the period of Ford ownership, the OCDA was utilized for the disposal of waste from Ford's Mahwah facility. The results of investigations conducted in this area indicate that waste and fill materials are present to a maximum depth of approximately 20 feet below ground surface. In general, a layer of undisturbed mine tailings underlies waste materials disposed of by Ford's contractor and other fill materials. The OCDA generally slopes to the east toward the Park Brook. Groundwater in the OCDA occurs in both the overburden and bedrock. Groundwater in the overburden flows to

the southeast and discharges to area streams, which ultimately discharge into the Wanaque Reservoir.

Paint sludge and other drummed industrial wastes are the primary sources of contamination at the Site. Paint sludge at the Site has been found to contain elevated levels of metals, including lead, while some of the drums excavated from the Site have been found to contain wastes with elevated levels of polychlorinated biphenyl (PCB) compounds. It should also be noted that levels of arsenic above New Jersey background soil levels have been found in some samples of mine tailings and paint sludge collected from the Site.

Peters Mine Pit Area Investigation

A supplemental RI of the Peters Mine Pit Area was initiated in March of 2006. As part of this RI, two test trenches and seven test pits were installed in the fill material which surrounds the Peters Mine Pit pond to characterize the fill material and to define the perimeter of the fill area. The test trenches were excavated from the edge of the water within the pit and continued until the edge of the fill was encountered. The test pits were installed near the anticipated perimeter of the Peters Mine Pit in order to confirm the extent of fill in the pit. Excavation of the test pits and test trenches was continued down to a depth where native soil, undisturbed mine tailings, bedrock or groundwater was encountered. In addition, four directional (diagonal) borings were installed through the fill material in the pit to the sidewall or base of the pit using rotosonic drilling techniques. The installation of these borings allowed for the visual characterization and field screening of wastes in the pit. Furthermore, soil/solid waste samples were collected from each 10-foot core segment recovered during the advancement of these borings (38 total samples) to characterize fill material contained within the Peters Mine Pit. Samples were collected from each core based upon visual appearance of the recovered material and field screening for volatile organic compounds (VOCs).

Fill materials encountered during installation of the test trenches included debris, drum remnants and paint sludge. The drum remnants encountered in the test trenches did not contain waste materials. Debris material was also encountered during installation of all of the test pits. Drum remnants were encountered in only one test pit, while paint sludge was discovered in two of the seven test pits installed in the Peters Mine Pit Area. The drum remnants encountered in one of the test pits did not contain waste material. The historic fill surrounding the pit, which is comprised of the same materials disposed of in the pit, was found to extend to an average depth of approximately 10 feet.

Paint sludge was also identified at depth in cores collected from one of the four directional borings. Lead was detected in seven of the 38 soil/solid waste samples collected from the borings at levels in excess of the State of New Jersey's Residential Direct Contact Soil Remediation Standard (RDCSRS) of 400 ppm. The concentrations of lead in these seven samples ranged from 463 ppm to 8,300 ppm. Arsenic was detected in 20 of the 38 soil/solid waste samples collected at levels in excess of its RDCSRS of 19 ppm. The concentrations of arsenic in these 20 samples ranged from 19.5 ppm to 82.9 ppm. Antimony was detected above its standard of 31 ppm in four samples at concentrations ranging from 95.9 ppm to 9,800 ppm. Vanadium was present above its standard of 78 ppm in five samples at concentrations from 86

ppm to 194 ppm. PCBs were detected at concentrations above their RDCSRS of 0.2 ppm in 15 of the 38 soil/solid waste samples. Total PCB concentrations in these samples ranged from 0.2 ppm to 6.4 ppm.

Semivolatile organic compounds (SVOCs) were also detected at concentrations above their respective RDCSRSs in 14 of the 38 samples. Benzo(a)anthracene was detected above its RDCSRS of 0.6 ppm at concentrations ranging from 0.613 ppm to 69.1 ppm. Benzo(a)pyrene was detected above its RDCSRS of 0.2 ppm at concentrations from 0.254 ppm to 65.2 ppm. Benzo(b)fluoranthene was detected above its standard of 0.6 ppm at concentrations from 1.44 ppm to 53 ppm. Benzo(k)fluoranthene was detected above its standard of 6 ppm in one sample at a concentration of 49.9 ppm. Bis(2-Ethylhexyl)phthalate was detected above its standard of 35 ppm at concentrations from 37.9 ppm to 4260 ppm. Chrysene was detected in one sample at a concentration of 65.3 ppm, which exceeds its standard of 62 ppm. Dibenzo(a,h)anthracene was present in samples at concentrations ranging from 0.405 ppm to 10.5 ppm, which exceed the RDCSRS of 0.2 ppm. Indeno(1,2,3-cd)pyrene exceeded its RDCSRS of 0.6 ppm in three samples at concentrations ranging from 0.887 ppm to 36.3 ppm. Naphthalene was detected above its standard of 6 ppm in one sample at a concentration of 40.2 ppm. Finally, pentachlorophenol was detected above its standard of 3 ppm in one sample at a concentration of 8.15 ppm.

VOCs were not detected in any of the soil/solid waste samples at concentrations that exceeded RDCSRSs. Benzene was detected at a maximum concentration of 1.1 ppm, which is below the RDCSRS of 2 ppm. The investigations conducted as part of the RI indicate that the Peters Mine Pit contains approximately 113,000 cubic yards of fill material, including approximately 23,700 cubic yards of mine tailings at the base of the pit.

The RI also included the installation and sampling of overburden and bedrock groundwater monitoring wells in the Peters Mine Pit and in the vicinity of the pit. The results of these investigations indicated the presence of benzene in groundwater in and downgradient of the pit at concentrations up to 5.5 parts per billion (ppb). In addition, benzene was detected in water contained in an airshaft to the east of the pit at concentrations as high as 33.2 ppb, which exceeds the New Jersey Ground Water Quality Standard (GWQS) of 1 ppb. The levels of benzene detected in groundwater in the Peters Mine Pit Area during this RI are consistent with levels detected during previous groundwater sampling events. Lead has also been detected sporadically in wells in the Peters Mine Pit Area at concentrations in excess of its GWQS of 5 ppb. Contaminants which may be associated with waste disposal were not detected in surface water samples collected from the Peters Mine Pit Pond at levels which exceeded the applicable New Jersey Surface Water Quality Standards.

Cannon Mine Pit Area Investigation

A supplemental RI of the Cannon Mine Pit Area was initiated in October 2007. As part of this RI, 12 test pits were installed in and around the perimeter of the Cannon Mine Pit to characterize the fill material and the extent of the pit. These test pits were excavated to bedrock, rock rubble, groundwater or a maximum depth of 15 feet below ground surface (bgs). In addition, six borings were installed within the pit into the underlying blast rock to confirm the depth of fill placement.

The installation of these borings allowed for the visual characterization and field screening of wastes in the pit. Soil/solid waste samples were collected from each 10-foot core recovered during the advancement of these borings (31 total samples) to characterize the fill material contained within the Cannon Mine Pit. Ten surface soil samples were also collected from within the Cannon Mine Pit.

Paint sludge was not identified during the installation of any of the test pits or borings. However, 10 drums were removed from one test pit during these investigations. The contents of two of these ten drums failed the Toxicity Characteristic Leaching Procedure (TCLP) for lead, and were required to be disposed of off-site as a hazardous waste. No contaminants were detected at concentrations above New Jersey's RDCSRSs in the surface soil samples collected during this RI. Lead was detected in 10 of the 31 soil/solid waste samples collected from the borings at levels in excess of the State of New Jersey's RDCSRS of 400 ppm. The concentrations of lead in these 10 samples ranged from 428 ppm to 9,030 ppm. Arsenic was detected in three of the 31 soil/solid waste samples collected at levels in excess of its RDCSRS of 19 ppm. The concentrations of arsenic in these three samples ranged from 19.6 ppm to 56.7 ppm. Antimony was detected above its standard of 31 ppm in two samples at concentrations of 39.7 ppm and 185 ppm. Vanadium was present above its standard of 78 ppm in five samples at concentrations from 80.2 ppm to 98.3 ppm.

PCBs were detected at concentrations above their RDCSRS of 0.2 ppm in two of the 31 soil/solid waste samples. Total PCBs were detected in these samples at concentrations of 1.14 ppm and 4.01 ppm. SVOCs were detected at concentrations in excess of their respective RDCSRSs in two of the 31 soil/solid waste samples. Benzo(a)anthracene was detected above its RDCSRS of 0.6 ppm at a concentration of 1.16 ppm. Benzo(a)pyrene was detected above its RDCSRS of 0.2 ppm at a concentration of 0.63 ppm. Benzo(b)fluoranthene was detected above its standard of 0.6 ppm at a concentration of 1.2 ppm. Bis(2-Ethylhexyl)phthalate was detected above its standard of 35 ppm in two samples at concentrations of 177 ppm and 367 ppm. Naphthalene was detected above its standard of 6 ppm in one sample at a concentration of 10.9 ppm.

VOCs were not detected in any of the soil/solid waste samples collected from the borings at concentrations in excess of their respective RDCSRSs. The results of investigations conducted in the Cannon Mine Pit Area indicate that the Cannon Mine Pit contains approximately 44,000 tons of fill material, excluding the blast rock located at the bottom of the pit. The shallow fill area surrounding the pit was found to contain soil mixed with solid waste, such as plastic, glass metal, newspaper and other refuse.

The RI in the Cannon Mine Pit Area also included the installation and sampling of bedrock groundwater monitoring wells in the Cannon Mine Pit and in the vicinity of the pit. Groundwater has not been encountered in the thin layer of overburden in the vicinity of the pit, therefore there are no overburden monitoring wells in this area of the Site. The results of the groundwater investigation indicate that the Cannon Mine Pit sits on top of a small ridge with groundwater in shallow bedrock to the east of the pit flowing to the southeast and groundwater to the west of the pit flowing to the southwest. Lead, which has sporadically been detected in groundwater in the Cannon Mine Pit Area at concentrations above its GWQS of 5 ppb, was not

detected above its GWQS during the April 2012 groundwater sampling event. Arsenic was detected above its GWQS of 3 ppb in two samples collected during the April 2012 groundwater sampling event at concentrations of 3.7 ppb and 3.6 ppb, respectively. Trichloroethene, which was detected in one monitoring well at concentrations above the GWQS of 1 ppb during sampling events conducted in 2008 and 2009, has not been detected in subsequent sampling events. Similarly, bis(2-Ethylhexyl)phthalate, which was detected at concentrations above its GWQS of 3 ppb during a groundwater sampling event conducted in the Cannon Mine Pit Area in 2008, has not been detected at elevated levels during subsequent sampling events.

O'Connor Disposal Area Investigation

A supplemental RI of the OCDA was initiated in July 2006, and was conducted in two phases. The initial phase of the RI included the installation of 14 test trenches and 10 test pits in the OCDA in order to characterize the fill material and to delineate the extent of the fill. Twenty-nine soil samples were collected from the fill material and the bottom of the test pits and trenches. In addition, 15 surface soil samples were collected from the OCDA. The second phase of investigation, which was conducted in 2010, included the completion of eight additional test trenches (3,169 linear feet), with the collection of 40 samples from the base of the trenches and 34 samples from the sidewalls of the trenches. These investigations indicated that approximately 183,600 cubic yards of fill material and mine tailings are present within the OCDA.

During performance of these investigations, paint sludge deposits were identified at the northern and southern ends of the OCDA. Twenty-two hundred tons of this paint sludge was excavated and disposed of off-site by Ford during early 2010. In addition, five drums of waste were identified during this RI. Three of these drums were disposed of off-site as hazardous waste while the contents of the remaining two drums were disposed of off-site as Toxic Substances Control Act waste with concentrations of PCBs in excess of 50 ppm.

Arsenic was detected in five of the 15 surface soil samples at concentration ranging from 42.4 ppm to 51.1 ppm, which exceed New Jersey's RDCSRS of 19 ppm. Lead was detected in all of the surface soil samples at concentrations from 11.2 ppm to 155 ppm, which did not exceed its RDCSRS of 400 ppm. PCBs were detected in one of the surface soil samples at a concentration of 0.287 ppm, which exceeds its RDCSRS of 0.2 ppm. VOCs and SVOCs were not detected in any of the surface soil samples at levels which exceed RDCSRSs.

VOCs were not detected above their respective RDCSRSs in any of the samples collected from the test pits or test trenches during the initial phase of investigation. SVOCs were detected at concentrations which exceed RDCSRSs in only one test pit/test trench sample collected during the initial phase of investigation. Specifically, benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthene were reported at concentrations of 1.27 ppm, 1.18 ppm and 1.25 ppm, which exceed their respective RDCSRSs of 0.6 ppm, 0.2 ppm and 0.6 ppm. Total PCBs were reported in excess of the 0.2 ppm standard in five samples, at concentrations ranging from 0.2124 ppm to 0.769 ppm. Arsenic was reported at levels in excess of its RDCSRS of 19 ppm in 11 test pit/test trench samples at concentrations ranging from 25.5 ppm to 59.7 ppm. Lead

exceeded its RDCSRS of 400 ppm in only one test pit/test trench sample collected during the initial phase of investigation, where it was detected at a concentration of 430 ppm.

During the second phase of investigation, VOCs were not detected above their respective RDCSRSs in any of the 74 samples collected from the trenches. SVOCs were detected above their respective RDCSRSs in four of the 74 samples collected from the trenches. Specifically, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene were detected at concentrations up to 1.66 ppm, 2.06 ppm, 2.22 ppm, 0.463 ppm and 1.34 ppm, which exceed their respective RDCSRSs of 0.6 ppm, 0.2 ppm, 0.6 ppm, 0.2 ppm and 0.6 ppm. PCBs were reported above the RDCSRS of 0.2 ppm in five samples, at concentrations ranging from 0.2115 ppm to 1.13 ppm. Arsenic exceeded its RDCSRS of 19 ppm in 29 samples collected from the trenches during the second phase of investigation, at concentrations ranging from 22.8 ppm to 126 ppm. Lead only exceeded its RDCSRS of 400 ppm in one trench sample collected during the second phase of investigation, where it was detected at a concentration of 477 ppm.

The RI also included the installation and sampling of overburden groundwater monitoring wells in the OCDA. Methyl Tertiary Butyl Ether (MTBE) is the only VOC which has been detected above its GWQS in the OCDA. MTBE was detected in a sample collected from one well during a July 2009 sampling event at a concentration of 171 ppb, which exceeds its GWQS of 70 ppb. However, MTBE has not been detected in the OCDA during subsequent groundwater sampling events. Bis(2-Ethylhexyl)phthalate is the only SVOC which has been detected above its GWQS in the OCDA. Bis(2-Ethylhexyl)phthalate was detected in samples collected from two wells in the OCDA during an April 2007 groundwater sampling event at concentrations of 6.6 ppb and 3.7 ppb, which exceed the GWQS of 3 ppb. However, bis(2-Ethylhexyl)phthalate has not been detected in the OCDA during subsequent groundwater sampling events. Historically, arsenic has been sporadically detected in groundwater samples collected from the OCDA at concentrations above its GWQS of 3 ppb. However, arsenic was detected above the 3 ppb GWQS in only one well during the 2012 sampling event. Historically, lead has been sporadically detected in groundwater samples collected from the OCDA at concentrations above its GWQS of 5 ppb. However, lead was not detected above its GWQS in groundwater samples collected from the OCDA during the 2012 sampling event.

Biota Study

Given that the Upper Ringwood residents reported that they regularly consume plants and wildlife at the Site and their concern about the potential for contaminants to enter the food chain, biota sampling was conducted by EPA's Environmental Response Team in 2006-2007 and again in 2009. EPA consulted with the local community to ensure that biota collected from the Site included game and plants which the community consumed. This biological monitoring study involved the collection of frogs, crayfish, small mammals (mice, voles and shrews), eastern gray squirrel, rabbits, turkey, eastern white-tail deer, wild carrot, dandelion greens, mushrooms, strawberries and raspberries. The intent of this study was to assess the potential migration of Site-related contaminants into the food chain and to determine whether contaminants are present in biota consumed by the Upper Ringwood community.

The results of plant root samples analyzed for metals indicated that plants in the OCDA, including wild carrot, had higher levels of lead (maximum concentration of 48.4 ppm, dry weight) than other sampling locations, including the reference sampling location. While a limited number of SVOCs were found in the plant tissue, these SVOCs were found at low levels.

The results of frog samples collected as part of the 2006-2007 study indicated the presence of lead in one sample collected from the Peter's Mine Pit Area (4.59 ppm) and one sample collected from the reference sampling location (6.71ppm). Lead was not detected in frog samples collected at the Site in 2009. SVOCs and PCBs were not detected above the reporting limit in any frog samples collected at the Site.

A total of 31 small mammals were collected as part of the 2006-2007 study, including 15 white – footed mice, nine northern short-tailed shrew, five woodland voles, a meadow vole and a southern red-backed vole. The results of small mammal tissue samples analyzed for metals indicated that the highest levels of lead occurred in small mammals collected in the OCDA (maximum concentration of 64.8 ppm). SVOCs and PCBs were not detected above their reporting limit in any small mammal samples collected at the Site.

Nine eastern gray squirrels were also collected from the OCDA as part of this biological monitoring study. Lead was detected in squirrel tissue samples at concentrations up to 0.79 ppm. SVOCs and PCBs were not detected above their reporting limit in any squirrel samples collected at the Site.

A total of five turkeys were collected from the OCDA as part of this study. Elevated concentrations of metals were not noted in turkey tissue samples. However, PCBs were detected in one turkey sample at its reporting limit of 182 ppb dry weight. Given that PCBs were only detected at a low concentration in one of five turkeys, substantial amounts of PCBs do not appear to be entering the food chain at the Site. SVOCs were not detected above the reporting limit in any turkey sample collected from the Site.

Three rabbits were collected from the OCDA as part of the 2006-2007 study. Lead, arsenic and antimony were not detected in any of the rabbit samples. In addition, PCBs and SVOCs were not detected in the rabbit samples collected as part of this study.

Thirteen white-tailed deer were also collected as part of this study. Three of the deer were collected from the Site and 10 deer were collected from an off-site reference location. Lead was detected in one sample collected from a Site deer at a concentration of 0.17 ppm, which is below the reporting limit for lead in the reference deer of approximately 0.2 ppm. Therefore, this data does not support a conclusion that lead is accumulating in deer at the Site. PCBs were not detected in Site and reference deer samples. Several SVOCs were detected at low levels in samples collected from both Site and reference deer.

The results of this study indicated that lead was accumulating in small mammals and plants collected from the Site, particularly those collected from the OCDA. However, lead accumulation was not observed in the larger wildlife which is consumed by the community. Other Site-related metals were not found to be substantively entering the food chain. In addition,

Site-related organic contaminants were not found to be entering the food chain, as it would have been expected that the shrews would have had consistently shown measurable concentrations of organic contaminants if bio-accumulation were occurring.

Comparison of OU1 and Current Remedial Investigations

From 1984 through 1988, a four-phase RI was conducted at the Site in order to characterize the nature and extent of Site-related contamination. Data collected as part of this RI provided the basis for selection of a remedy in the OU1 ROD. The OU1 RI identified the need to conduct investigations in only four areas of the Site, based upon a review of available literature concerning the Site, analysis of historic aerial photographs and a limited Site reconnaissance.

The OU1 RI included the installation of test pits and the collection of soil samples in the Peters Mine Pit/OCDA, St. Georges Pit/Miller Keeler Pit, Cannon Mine Pit, and the inactive Borough Landfill areas of the Site. In addition groundwater, surface water and seep water samples were collected from the above-referenced investigation areas. As part of the OU1 RI, four test pits were installed in the OCDA and three test pits were installed in the Cannon Mine Pit in order to characterize the fill material. Only one test pit was installed in the fill which surrounds the Peters Mine Pit Pond to characterize this fill material. Soil samples were collected as part of the OU1 RI primarily to confirm the removal of surficial paint sludge deposits which were addressed by Ford pursuant to the 1987 UAO.

Subsequent to issuance of the OU1 ROD, additional deposits of paint sludge were identified at the Site in 1989, 1995, 1998 and 2004. Due to the continued discovery of waste, EPA determined that a Supplemental Remedial Investigation should be performed to ensure that wastes which may present an unacceptable risk to human health and the environment were identified and addressed. The first phase of the OU2 RI involved the performance of an expanded Field Reconnaissance Survey (FRS) to search for evidence of waste disposal in non-residential areas of the Site which could have received waste. Various sources of information were used to determine the scope of the FRS, including historic aerial photographs and information obtained from the community. In addition stereo aerial photographs from December 1961 and April 1974 were utilized to develop topographic maps of the Site which denote ground elevation changes which occurred during the period that Ford was using areas of the Site for waste disposal. Areas which appeared to show evidence of filling during this time period were included in the FRS. The FRS also included historically designated disposal areas, former and current paint sludge disposal areas, disturbed areas identified on aerial photographs, areas along historic access roads and trails, surface depressions, ravines along access roads and areas identified by the Upper Ringwood community. The FRS consisted of a visual survey of the above-referenced areas for the presence of paint sludge, drum remnants and other indicators of potential waste disposal. In addition, subsurface observations were made throughout these areas through the visual inspection of soil samples taken with a soil probe.

The results of the FRS were utilized to identify areas that could have potentially been impacted by disposal activities, based upon observations made during the FRS. In 2005 and 2006 a Site-wide Test Pit Investigation was conducted at the Site to further investigate these suspect areas. The Site-wide Test Pit Investigation provided for the installation of test pits in all of these

suspect areas to determine whether paint sludge or drums of waste were disposed of at these locations. Seventy-nine test pits were installed as part of this investigation. Any identified paint sludge disposal areas were subsequently addressed in removal actions conducted by Ford under EPA oversight.

The OU2 RI also identified the need for additional investigations to be conducted in the Peters Mine Pit, Cannon Mine Pit, and O'Connor Disposal Areas of the Site. While the OU1 RI provided for the installation of one test pit in the Peters Mine Pit Area, the OU2 RI included the installation of two test trenches, seven test pits and four directional borings within the Peters Mine Pit to thoroughly characterize the fill material. While three test pits were installed in the Cannon Mine Pit during the OU1 RI, the OU2 RI provided for the installation of 12 test pits and six deep soil borings to ensure thorough characterization of materials in the pit. The OU2 RI also included the installation of over 3169 linear feet of additional test trenches in the OCDA to thoroughly characterize the materials disposed of in this area of the Site.

In addition, a more comprehensive groundwater investigation is being conducted as part of the OU3 RI. Geophysical, environmental tracer, isotope and geochemical studies have been conducted as part of the OU3 RI to better understand groundwater flow pathways and connectivity between bedrock, overburden, the mine shafts and surface water. The results of the OU3 RI will be used as the basis for selection of a remedy for Site-wide groundwater.

Paint sludge and lead-contaminated soil located on residential properties at the Site outside of the above-referenced areas are being addressed by EPA under CERCLA's removal authority.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Portions of the Site are currently used as State of New Jersey parkland (Ringwood State Park), utility corridors (Public Service Electric & Gas and Rockland Electric Company), Borough of Ringwood facilities, including a Recycling Center and a Public Works yard, a power sub-station and open space (Borough of Ringwood property). In addition, 48 residential properties are located throughout the Site.

The land that comprises the Peters Mine Pit Area is currently used for recreational purposes as part of the Ringwood State Park and is expected to remain in use as part of the State park in the future. The Cannon Mine Pit and the O'Connor Disposal Areas are currently undeveloped and are zoned for residential use. EPA does not anticipate that the zoning of the Cannon Mine Pit would change in the future. Representatives of the Borough of Ringwood have informed EPA that they intend to relocate the Borough of Ringwood's recycling center to the OCDA. EPA has also been informed that the proposal to relocate the recycling center has been presented to the Borough of Ringwood's Planning Board.

Groundwater beneath the Site has been designated as Class II groundwater by the State of New Jersey, for the intended use as a potable water supply. However, residents at the Site currently obtain their drinking water from the public water supply, which draws its water from well fields located in a different watershed approximately two miles from the Site. During periods of high

demand, the Borough of Ringwood may also obtain drinking water from the North Jersey District Water Supply Commission.

SUMMARY OF OPERABLE UNIT TWO RISKS

As part of the RI/FSs for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas, baseline risk assessments were conducted to estimate the current and future effects of contaminants that currently exist at the Site on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and future land, groundwater and surface water/sediment uses. The baseline risk assessment includes a human health risk assessment (HHRA) and an ecological risk assessment.

EPA notes that the historic paint sludge removal actions implemented in the non-residential areas of the Site, including the OCDA and the Peters Mine Pit Area, have addressed much of the potential risk originally associated with the Site. Because the HHRA's evaluate current and potential future risks associated with the Site, EPA believes that implementation of the removal actions has reduced the potential risks that would have been identified by the HHRAs had these removal actions not been conducted.

Human Health Risk Assessments

An HHRA is an analysis of the potential adverse human health effects caused by exposure to hazardous substances in the absence of any action to control or mitigate these exposures under current and future land uses. The HHRA provides the basis for taking an action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. Separate HHRAs have been completed for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas of the Site. While EPA recognizes that individuals may spend only a portion of their time in a single area of the Site, the HHRAs calculate risk assuming that individuals confine their activities to a single area as it is possible that individuals may occasionally only spend time in a single area. In addition, in order to recognize that it is reasonable to assume people spend time at each area, the HHRAs include a second set of risk calculations which apportion exposures based upon the relative contribution of acreage of each area of concern to the total 22 acres of the three areas of concern at the Site.

A four-step process is utilized for assessing Site-related cancer risks and non-cancer health hazards. The four step process is comprised of:

Hazard Identification - uses the analytical data collected to identify chemicals of potential concern (COPCs) at a site for each medium, based on several factors such as toxicity, frequency of occurrence, and concentration;

Exposure Assessment - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways by which humans are potentially exposed (i.e., ingesting contaminated soil) under both current and reasonably anticipated future

land uses;

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); and

Risk Characterization - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. The risk characterization identifies contaminants with concentrations which exceed acceptable levels, defined by the National Contingency Plan (NCP) as an excess lifetime cancer risk greater than 1×10^{-6} to 1×10^{-4}, for cancer, and a Hazard Index (HI) of greater than 1 for non-cancer health hazards. Chemicals with concentrations that exceed these guidelines are considered chemicals of concern (COCs) for the Site and are typically those that will require remediation. The uncertainties associated with the risk calculations are also evaluated under this step.

Peters Mine Pit Area

Hazard Identification

The identification of COPCs for OU2 was conducted in two phases. First, the frequency of detection of compounds in Site-wide data for soil, sediment, surface water and biota was determined. Any compound in a specific medium with a detection frequency of less than five percent was excluded from further analysis. The remaining compounds were compared with risk-based screening criteria to identify COPCs for OU2. All compounds which have been determined to be known human carcinogens were retained as COPCs regardless of their detection frequency or comparison to risk-based screening criteria.

The maximum detected concentrations in soil and sediment samples were compared to EPA's Regional Screening Levels (RSLs) for Residential Soils. If the maximum detected concentration of any compound exceeded the applicable RSL, it was retained as a COPC. Similarly, maximum detected concentrations in surface water were compared to the lowest value provided by EPA's National Recommended Water Quality Criteria for Freshwater, the New Jersey Water Quality Criteria or EPA's Maximum Contaminant Levels for drinking water. If the maximum detected concentration of a compound exceeded the lowest of these criteria, the chemical was retained as a COPC. For biota samples, any compound that was detected in at least one biota sample was retained as a COPC for that particular plant or animal.

COPCs identified for soil include VOCs, SVOCs and metals, including arsenic and lead. COPCs identified for sediment and biota included SVOCs and metals. VOCs, SVOCs and metals, including lead, were identified as COPCs for surface water. Only those COPCs that were detected in at least one sample for the medium of concern in the Peters Mine Pit Area are evaluated further in the HHRA for this area. A comprehensive list of all Site COPC can be found in the Table 2 series of the March 2012 Baseline Human Health Risk Assessment for Peters Mine Pit Area of Concern.

Exposure Assessment

Consistent with Superfund policy and guidance, the HHRA for the Peters Mine Pit Area assumes no remediation or institutional controls are implemented to address any hazardous substances currently in this area of the Site. Furthermore, 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 central tendency estimate (CTE), or the average exposure, was also evaluated.

The exposure assessment identified potential human receptors based upon an evaluation of current and potential future land uses in the Peters Mine Pit Area. EPA consulted with members of the Upper Ringwood community to help determine how this area of the Site is currently being utilized by local residents. Furthermore, it should be noted that the Peters Mine Pit Area is zoned as Conservation land, so it is not eligible for future residential or commercial development. Based upon the zoning and demographic information gathered during the RI, as well as land use information provided by the Upper Ringwood community, the following exposure scenarios were evaluated in the HHRA:

Walker/Hiker /Dog Walker: This exposure scenario assumes that a walker/hiker/dog walker is exposed to surface soil in the Peters Mine Pit Area through ingestion, dermal contact and inhalation of dust while walking through this area of the Site. Potential risks were evaluated for young children (age 1 - 6), older children (age 7 - 16) and adults who may use the Peters Mine Pit Area.

Wader: Under this exposure scenario, a wader is assumed to be exposed to sediment and surface water through ingestion and dermal contact while wading in brooks and ponds in this area of the Site. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may wade in the Peters Mine Pit Area.

Hunter/Gatherer: Upper Ringwood residents informed EPA that community members regularly hunt game and gather wild plants at the Site for consumption. Therefore, the hunter/gatherer scenario evaluates potential risks associated with ingestion of game and plants collected from the Site. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may consume biota collected from the OU2 areas of the Site.

Outdoor Worker: It is assumed that outdoor workers are currently exposed to surface soils via ingestion, dermal contact and inhalation of dust while working in the Peters Mine Pit Area.

Combined Walker/Hiker/Dog Walker, Wader, and Hunter/Gatherer Scenario: This scenario evaluates potential risk associated with cumulative exposure to the walker/hiker/dog walker, wader and hunter/gatherer through ingestion of soil, ingestion and dermal contact of sediment and surface water and ingestion of game and plant tissue. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults.

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPC), which is usually an upper-bound estimate of the average concentration for

each contaminant, but in some cases may be the maximum detected concentration. For soils in the Peters Mine Pit Area, the maximum detected concentration for each COPC was used as the EPC, with the exception of lead. For sediment, surface water, game and plant tissue, the lower of the maximum concentration or the 95 percent upper confidence limit (UCL) of the average concentration was used as the EPC for each COPC, with the exception of lead. For lead, the average concentration was chosen as the EPC for all media, which is consistent with national guidance for evaluating exposure to lead.

Toxicity Assessment

Under current EPA guidelines, the likelihood of carcinogenic risks and non-cancer hazards due to exposure to site-related 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 risks and non-cancer hazards 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 EPA's directive on toxicity values (OSWER Directive 9285.7-53, December 5, 2003). This information is presented in Appendix III, Tables 3-1a and 3-1b (non-cancer toxicity data summary for oral/dermal and inhalation) and Tables 3-1c and 3-1d (cancer toxicity data summary for oral/dermal and inhalation). Additional toxicity information for all COPCs is presented in the HHRA for the Peters Mine Pit Area.

EPA has not published conventional quantitative toxicity values for lead because available data suggests a very low or no threshold for adverse effects, even at background levels. However, the toxicokinetics of lead are well understood and indicate that lead is regulated based on the blood lead concentration. In lieu of evaluating current and future risks using typical intake calculations and toxicity criteria, EPA developed models to evaluate lead exposure. For this HHRA, blood lead concentrations were estimated using the Integrated Exposure Uptake Biokinetic (IEUBK) and the Adult Lead Methodology (ALM) models. Currently, EPA's health-based goal for blood lead levels in children is no more than five percent of the population having greater than 10 micrograms per deciliter (ug/dl).

Risk Characterization

This step combined outputs of the exposure and toxicity assessments to provide a quantitative assessment of risks related to the Peters Mine Pit Area. The potential risk of developing cancer and the potential for non-cancer health hazards were determined.

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:

Risk = LADD x 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/(mg/kg-day)]

These risks are probabilities that are usually expressed in scientific notation (such as 1×10^{-4}). An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the assessment. Again, as stated in the National Contingency Plan, the acceptable risk range for site-related exposure is 10^{-4} to 10^{-6}, which corresponds to a one-in-ten-thousand to a one-in-a-million excess cancer risk.

Non-cancer hazards were assessed using a hazard index (HI) approach, 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 soil) 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.

HQ = Intake/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).

As previously stated, 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-cancer health effects to occur as a result of Site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete 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. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

A summary of the potential cancer risks and non-cancer health hazards for each exposure pathway is presented in Appendix III, Tables 4-1a and 4-1b.

The HHRA for the Peters Mine Pit Area evaluated Walker/Hiker/Dog Walker, Wader, Hunter/Gatherer and Current Outdoor Worker exposure scenarios, assuming an apportionment factor of 100 percent. This apportionment factor assumes that 100 percent of the receptors' exposure occurs within this area of the Site. The results of the HHRA indicate that the potential cancer risk for game hunters and gathers of wild plants in the Peters Mine Pit Area falls at the upperbound of EPA's risk management range of 10^{-4} to 10^{-6} for the reasonable maximum exposure expected to occur. The cumulative potential cancer risk for the Hunter/Gatherer scenario for adult, young child and older child is 4×10^{-4}, which indicates that there may be an unacceptable risk to these receptors due primarily to ingestion of arsenic in plant and game tissue. Potential risks associated with all other exposure scenarios fell within or below EPA's risk management range. Potential non-cancer risks were also estimated by calculating hazard indices. Under the Hunter/Gatherer scenario, hazard indices were above EPA's target HI of 1 for the circulatory system, skin, kidney and gastrointestinal tract, for the reasonable maximum exposure expected to occur. However, following EPA's process for evaluating non-cancer hazards, when mechanisms of action (i.e. specific functional or anatomical change at the cellular level, resulting from the exposure to a substance) for the COPCs are considered, non-cancer HIs for all critical effects are around the benchmark value of 1.

The HHRA for the Peters Mine Pit Area also evaluated Walker/Hiker/Dog Walker and Hunter/Gatherer exposure scenarios, assuming an apportionment factor of 23 percent, which represents the size of the Peters Mine Pit Area relative to the size of all three source areas. The cumulative potential cancer risk for these exposure scenarios is 1×10^{-4} for the reasonable maximum exposure expected to occur. The apportioned potential non-cancer risk under the Walker/Hiker/Dog Walker scenario was at or below EPA's target HI of 1 for all receptors. For the Hunter/Gatherer scenario, the hazard indices for the adult, youth and young child are all below 1 when assessed by target organ.

Anticipated blood lead levels in Site receptors were also evaluated to determine whether exposure to lead in media at the Site presents an unacceptable risk. Blood lead levels for the young child hunter/gatherer following exposure to lead in game and plant tissue were predicted to exceed 10 ug/dl in 14 percent of the hypothetically exposed population, which exceeds EPA's target threshold of five percent, indicating potential unacceptable risk due to exposure to lead.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation

- toxicological data

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. The sampling locations may not accurately reflect the range, frequency and distribution of compounds at the Site. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the Hazard Identification process were also associated with the screening of sediment concentrations against soil screening data, since sediment screening criteria are not available. In addition, if screening values were not available for a compound, the compound was retained as a COPC and quantitatively evaluated in the HHRA to ensure that potential risks were not underestimated.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the COPCs, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the COPCs at the point of exposure. The HHRA for the Peters Mine Pit Area also assumes that the hypothetical walker/hiker/dog walker confines their activities to the OU2 area (22 acres) of the 500-acre Site, which may result in overestimation of potential risk.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site. Additional uncertainty is associated with the use of the ALM model to determine potential risks associated with lead exposure in adults and older children. The ALM model cannot be used to determine potential risks from lead in game and plant tissue, which may result in underestimation of risks associated with lead exposure to the adult and older child.

Cannon Mine Pit Area

Hazard Identification

The identification and screening of COPCs was conducted as described above in the *Hazard Identification* section for the Peters Mine Pit Area. Only those COPCs that were detected in at least one sample for the medium of concern in the Cannon Mine Pit Area are evaluated further in the HHRA for this area.

Exposure Assessment

For the Cannon Mine Pit Area, 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 central tendency estimate (CTE), or the average exposure, was also evaluated.

The exposure assessment identified potential human receptors based upon an evaluation of current and potential future land uses in the Cannon Mine Pit Area. EPA consulted with members of the Upper Ringwood community to help determine how this area of the Site is currently being utilized by local residents. Based upon the zoning and demographic information gathered during the RI, as well as land use information provided by the Upper Ringwood community, the following exposure scenarios were evaluated in the HHRA:

Walker/Hiker /Dog Walker: This exposure scenario assumes that a walker/hiker/dog walker is exposed to surface soil in the Cannon Mine Pit Area through ingestion, dermal contact and inhalation of dust while walking through this area of the Site. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may use the Cannon Mine Pit Area.

Dirt Biker/ATV Rider: Under this exposure scenario, a dirt biker/ATV rider is assumed to be exposed to surface soils through ingestion, dermal contact and inhalation of dust while riding dirt bikes and ATVs through this area of the Site. Potential risks were evaluated for older children (age 7 – 16) and adults.

Hunter/Gatherer: Upper Ringwood residents informed EPA that community members regularly hunt game and gather wild plants at the Site for consumption. Therefore, the hunter/gatherer scenario evaluates potential risks associated with ingestion of game and plants collected from the Site. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may consume biota collected from the OU2 area of the Site.

Current Outdoor Worker: It is assumed that outdoor workers clearing brush are currently exposed to surface soils via ingestion, dermal contact and inhalation of dust while working in the Cannon Mine Pit Area.

Future Resident: A portion of the Cannon Mine Pit Area is zoned for residential use. Therefore, it is assumed that future residents may be exposed to surface soils via ingestion, dermal contact and inhalation of dust while using their yards. Potential risks were evaluated for young children (age 1 - 6), older children (age 7 – 16) and adult residents.

Future Outdoor Worker: A portion of the Cannon Mine Pit Area is zoned for industrial use. Therefore, future industrial development is possible, and future outdoor workers are assumed to be exposed to surface soils via ingestion, dermal contact and inhalation of dust.

Combined Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider, and Hunter/Gatherer: This scenario evaluates potential risk associated with cumulative exposure to the walker/hiker/dog walker, dirt biker/ATV rider and hunter/gatherer through ingestion of and dermal contact with soil, and ingestion of game and plant tissue. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults.

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPC), which is usually an upper-bound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. For soil, game and plant tissue, the lower of the maximum concentration or the 95 percent upper confidence limit (UCL) of the average concentration was used as the EPC for each COPC, with the exception of lead. For lead, the average concentration was chosen as the EPC for all media, which is consistent with national guidance for evaluating exposure to lead.

Toxicity Assessment

Toxicity data for the HHRA for the Cannon Mine Pit Area were identified as discussed in the *Toxicity Assessment* section for the Peters Mine Pit Area. This information is presented in Appendix III, Tables 3-2a and 3-2b (non-cancer toxicity data summary for oral/dermal and inhalation) and Tables 3-2c and 3-2d (cancer toxicity data summary for oral/dermal and inhalation). Additional toxicity information for all COPCs is presented in the HHRA for the Cannon Mine Pit Area.

Risk Characterization

Potential cancer risks and non-cancer hazards related to exposure to the Cannon Mine Pit Area were quantified as discussed in the *Risk Characterization* section for the Peters Mine Pit Area. A summary of the potential cancer risks and non-cancer health hazards for each exposure pathway is presented in Appendix III, Tables 4-2a and 4-2b.

The HHRA for the Cannon Mine Pit Area evaluated Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider, Hunter/Gatherer, Current Outdoor Worker, Future Resident and Future Outdoor Worker exposure scenarios, assuming an apportionment factor of 100 percent. This apportionment factor assumes that 100 percent of the receptors' exposure occurs within this area of the Site. Results of the HHRA indicate that the potential cancer risk for game hunters and gathers of wild plants in the Cannon Mine Pit Area falls at the upperbound of EPA's risk management range of 10^{-4} to 10^{-6} for the reasonable maximum exposure expected to occur. The cumulative potential cancer risk for the Hunter/Gatherer scenario for adult, young child and older child is 3×10^{-4}, which indicates that there may be an unacceptable risk to these receptors due primarily to ingestion of arsenic found in plant and game tissue. Potential non-cancer risks were also estimated by calculating hazard indices. Under the Hunter/Gatherer scenario, hazard indices were above EPA's target HI of 1 for the circulatory system and gastrointestinal tract for the reasonable maximum exposure expected to occur. However, following EPA's process for evaluating non-cancer hazards, when mechanisms of action for the COPCs are considered, non-cancer HIs for all critical effects are around the benchmark value of 1. Potential risks associated with all other exposure scenarios fell within or below EPA's risk management range.

The HHRA for the Cannon Mine Pit Area also evaluated Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider, and Hunter/Gatherer exposure scenarios, assuming an apportionment factor of 23 percent, which represents the size of the Cannon Mine Pit Area relative to the size of all three source areas. The cumulative potential cancer risk for these exposure scenarios is 7×10^{-5} for the reasonable maximum exposure expected to occur. The apportioned potential non-cancer risk

under the Walker/Hiker/Dog Walker and Dirt Biker/ATV Rider scenarios was below EPA's target HI of 1 for all receptors. For the Hunter/Gatherer scenario, the hazard indices for the adult, youth and young child are all below one when assessed by target organ.

Anticipated blood lead levels in Site receptors were also evaluated to determine whether exposure to lead in media at the Site present an unacceptable risk. Blood lead levels for the young child hunter following exposure to lead in game and plant tissue were also predicted to exceed 10 ug/dl in 5.6 percent of the hypothetically exposed population, which slightly exceeds EPA's target threshold of 5 percent, indicating potential unacceptable risk due to exposure to lead.

Uncertainties

The uncertainties associated with the procedures and inputs used to assess risks in this HHRA are as discussed in the *Uncertainties* section for the Peters Mine Pit Area.

O'Connor Disposal Area

Hazard Identification

The identification and screening of COPCs was conducted as described above in the *Hazard Identification* section for the Peters Mine Pit Area. Only those COPCs that were detected in at least one sample for the medium of concern in the OCDA are evaluated further in the HHRA for this area.

Exposure Assessment

For the OCDA, 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 central tendency estimate (CTE), or the average exposure, was also evaluated.

The exposure assessment identified potential human receptors based upon an evaluation of current and potential future land uses in the OCDA. EPA consulted with members of the Upper Ringwood community to help determine how this area of the Site is currently being utilized by local residents. Based upon the zoning and demographic information gathered during the RI, as well as land use information provided by the Upper Ringwood community, the following exposure scenarios were evaluated in the HHRA:

Walker/Hiker /Dog Walker: This exposure scenario assumes that a walker/hiker/dog walker is exposed to surface soil in the OCDA through ingestion, dermal contact and inhalation of dust while walking through this area of the Site. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may use the OCDA.

Dirt Biker/ATV Rider: Under this exposure scenario, a dirt biker/ATV rider is assumed to be exposed to surface soils through ingestion, dermal contact and inhalation of dust while riding dirt

bikes and ATVs through this area of the Site. Potential risks were evaluated for older children (age 7 – 16) and adults.

Wader: Under this exposure scenario, a wader is assumed to be exposed to sediment and surface water through ingestion and dermal contact while wading in the Park Brook which flows adjacent to the OCDA. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may wade in the Park Brook.

Hunter/Gatherer: Upper Ringwood residents informed EPA that community members regularly hunt game and gather wild plants at the Site for consumption. Therefore, the hunter/gatherer scenario evaluates potential risks associated with ingestion of game and plants collected from the Site. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults who may consume biota collected from the OU2 area of the Site.

Current Outdoor Worker: It is assumed that outdoor workers clearing brush along the utility right of way in the OCDA are currently exposed to surface soils via ingestion, dermal contact and inhalation of dust.

Future Resident: A portion of the OCDA is zoned for residential use. Therefore, it is assumed that future residents may be exposed to surface soils via ingestion, dermal contact and inhalation of dust while using their yards. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adult residents.

Combined Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider, Wader, and Hunter/Gatherer: This scenario evaluates potential risk associated with cumulative exposure to the walker/hiker/dog walker, dirt biker/ATV rider, wader and hunter/gatherer through ingestion, dermal contact and inhalation of soil, ingestion and dermal contact of sediment and surface water, and ingestion of game and plant tissue. Potential risks were evaluated for young children (age 1 – 6), older children (age 7 – 16) and adults.

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPC), which is usually an upper-bound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. For soil, surface water, and game and plant tissue, the lower of the maximum concentration or the 95 percent upper confidence limit (UCL) of the average concentration was used as the EPC for each COPC, with the exception of lead. For sediment, the maximum detected concentration for each COPC was used as the EPC, with the exception of lead. For lead, the average concentration was chosen as the EPC for all media, which is consistent with national guidance for evaluating exposure to lead.

Toxicity Assessment

Toxicity data for the HHRA for the OCDA were identified as discussed in the *Toxicity Assessment* section for the Peters Mine Pit Area. This information is presented in Appendix III, Tables 3-3a and 3-3b (non-cancer toxicity data summary for oral/dermal and inhalation) and Tables 3-3c and 3-3d (cancer toxicity data summary for oral/dermal and inhalation). Additional

toxicity information for all COPCs is presented in the HHRA for the OCDA.

Risk Characterization

Potential cancer risks and non-cancer hazards related to exposure to the OCDA were quantified as discussed in the *Risk Characterization* section for the Peters Mine Pit Area. A summary of the potential cancer risks and non-cancer health hazards for each exposure pathway is presented in Appendix III, Tables 4-3a and 4-3b.

The HHRA for the OCDA evaluated Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider, Wader, Hunter/Gatherer, Current Outdoor Worker and Future Resident exposure scenarios, assuming an apportionment factor of 100 percent. This apportionment factor assumes that 100 percent of the receptors' exposure occurs within this area of the Site. Results of the HHRA indicate that the potential cancer risk for game hunters and gathers of wild plants in the OCDA falls at the upperbound of EPA's risk management range of 10^{-4} to 10^{-6} for the reasonable maximum exposure expected to occur. The cumulative potential cancer risk for the Hunter/Gatherer scenario for adult, young child and older child is 3×10^{-4}, which indicates that there may be an unacceptable risk to these receptors due primarily to arsenic in plant and game tissue. Potential non-cancer risks were also estimated by calculating hazard indices. Under the Hunter/Gatherer scenario, hazard indices were above EPA's target HI of 1 for the circulatory system, skin, kidney and gastrointestinal tract. Under the Resident scenario, hazard indices were above EPA's target HI of 1 for the circulatory system and skin of the young child, for the reasonable maximum exposure expected to occur. However, following EPA's process for evaluating non-cancer hazards, when mechanisms of action for the COPCs are considered, non-cancer HIs for all critical effects are around the benchmark value of 1. Potential risks associated with all other exposure scenarios fell within or below EPA's risk management range.

The HHRA for the OCDA also evaluated Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider, Wader and Hunter exposure scenarios, assuming an apportionment factor of 54 percent, which represents the size of the OCDA relative to the size of all three source areas. The cumulative potential cancer risk for these exposure scenarios is 3×10^{-4} for the reasonable maximum exposure expected to occur, which indicates that there would be an unacceptable risk to these receptors, due primarily to arsenic in plant and game tissue. The apportioned potential non-cancer risk under the Walker/Hiker/Dog Walker, Dirt Biker/ATV Rider and Wader scenarios was at or below EPA's target HI of 1 for all receptors. For the Hunter/Gatherer scenario, the HI for the adult, youth and young child for the gastrointestinal tract is 2, which is slightly above EPA's target HI of 1. However, when mechanisms of action for the COPCs are considered, non-cancer HIs for all critical effects are around the benchmark value of 1.

Blood lead levels for the young child hunter following exposure to lead in game and plant tissue were also predicted to exceed 10 ug/dl in 5.6 percent of the hypothetically exposed population, which slightly exceeds EPA's target threshold of five percent, indicating potential unacceptable risk due to exposure to lead.

Potential human health risk associated with exposure of a future recycling center worker to waste in the OCDA was also qualitatively assessed, given the Borough of Ringwood's expressed intent

to construct a recycling center in this area. The cancer risk to a future recycling center worker was estimated to be $2x10^{-5}$, which is within EPA's risk management range. In addition, evaluation of the potential non-cancer risk to a future recycling center worker resulted in an HI of 0.2, which is below EPA's benchmark value of 1.

Uncertainties

The uncertainties associated with the procedures and inputs used to assess risks in this HHRA are as discussed in the *Uncertainties* section for the Peters Mine Pit Area.

Ecological Risk Assessments

The potential impacts of Site-related contaminants on the ecological receptors that inhabit the Site were evaluated in the ecological risk assessments that were conducted for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas. The ecological risk assessment for each of the referenced areas consisted of two documents: a Screening Level Ecological Risk Assessment (SLERA) and a Baseline Ecological Risk Assessment (BERA).

The initial SLERAs followed a two-step approach consisting of a problem formulation and ecological effects evaluation step and an exposure estimate and risk calculation step. Chemicals of potential ecological concern (COPECs) were identified by comparing chemical data from each area to ecologically based screening levels (EBSLs). Chemicals were retained as COPEC if they were detected in at least one sample and if the maximum detected concentration was greater than the applicable EBSL. Pathways by which ecological receptors could be exposed to Site contaminants and ecologically relevant receptor groups were also identified. Completed exposure pathways included both direct exposure of primary and secondary trophic level receptors (i.e., lower-level food chain receptors) to COPECs, and food chain transfer to upper tropic level receptors. Exposure point concentrations (EPCs), which are estimates of COPEC concentrations at points of potential exposure, were then calculated for Site media. The average daily dose (ADD) of COPECs that upper trophic level receptors would be expected to receive through ingestion of food, surface water and incidental ingestion of soil/and or sediment was also determined.

Potential risk was then evaluated by calculating the ratio of an exposure estimate (EPC or ADD) to an ecological effects concentration. The resulting ratio is referred to as a hazard quotient (HQ). A HQ greater than 1 indicates that the potential exists for adverse ecological effects to occur as a result of Site-related exposures. Risks to lower trophic level receptors were evaluated by comparing EPCs to EBSLs. Risks to upper trophic level receptors were determined by comparing ADDs to toxicity reference values, which are laboratory determined doses above which ecological effects may be expected to occur and below which ecological effects should not occur. If the results of a SLERA indicate that risk to ecological receptors may exist, a BERA is then performed to further evaluate these potential risks using more realistic exposure assumptions.

The results of the SLERA for the Peters Mine Pit Area indicate that there are contaminants in soil and sediment that are present at concentrations greater than EBSLs, which indicates a

potential risk to terrestrial invertebrates, plants and aquatic invertebrates. The results of the SLERA prompted the performance of a BERA which incorporated dose modeling for aquatic exposure pathways and refinements to dose modeling for soil. The results of dose modeling for soil indicate that risks associated with potential exposure of ecological receptors (i.e. short-tailed shrew, meadow vole and the American robin) are low with no HQ for any receptor exceeding 1. The results of dose modeling for sediment indicated that all Lowest Observed Adverse Effect Level (LOAEL) HQs are below 1, with the exception of copper in the tree swallow, which had a HQ of 2. These results indicate that risks associated with potential exposure of ecological receptors are low.

The SLERA for the Cannon Mine Pit Area indicates that there is a potential for adverse ecological impacts due to the presence of metals in soil at levels which exceed EBSLs. Furthermore, the results of food-chain modeling indicated that potential ecological risks within the Cannon Mine Pit Area were associated with exposures of metals in soil to the American robin, meadow vole and short-tailed shrew. The results of the SLERA prompted the performance of a BERA to provide an analysis of potential risks using more realistic exposure assumptions. The results of refined dose modeling for soil conducted as part of the BERA indicate that risks associated with potential exposure of ecological receptors (i.e. short-tailed shrew, meadow vole and the American robin) are low, with no LOAEL HQ exceeding 1.

The SLERA for the OCDA concludes that there are potential risks to meadow vole, short-tailed shrew, American robin and the tree swallow associated with exposure to soil and sediment in the OCDA. These potential risks are primarily associated with exposure to antimony, lead and nickel. In addition, this SLERA concludes that low levels of bis (2- ethylhexyl)phthalate and cadmium in surface water, and metals in surface soil and sediment may pose a potential risk to plants and invertebrates in the OCDA. The results of the SLERA prompted the performance of a BERA to provide an analysis of potential risks using more realistic exposure assumptions. The results of refined dose modeling for soil and sediment conducted as part of the BERA indicate that risks associated with potential exposure of ecological receptors (i.e. short-tailed shrew, meadow vole, American robin, red-tailed hawk and tree swallow) are low, with no LOAEL HQ exceeding 1.

Basis for Remedial Action

The HHRA's for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas demonstrate that unacceptable excess lifetime cancer risks may be associated with the consumption of game and plants collected from these areas of the Site due to arsenic. Furthermore, blood lead levels for the hypothetical young child hunter exposed to lead in plants and game collected from these areas were also predicted to exceed EPA's target threshold, indicating potential unacceptable risk due to exposure to lead.

The response action selected in this ROD is necessary to protect public health, welfare or the environment from actual or threatened releases of hazardous substances, pollutants or contaminants from the Site.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) were developed for waste and soil contained in the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas based upon the findings of the respective RIs. The RAOs serve to address the human health risks presented by the potential exposure to waste and soil in these areas of the Site. The RAOs for these areas of the Site are as follows:

- Limit direct exposure to soil or fill materials containing hazardous substances at levels exceeding those set forth in the New Jersey State Residential Direct Contact Soil Remediation Standards (RDCSRSs);

- Limit or reduce exposures by residents, recreators, hunters, and/or hikers to an additional lifetime cancer risk range of between 1×10^{-4} and 1×10^{-6}, and lifetime non-carcinogenic HI less than 1.0 associated with impacted fill in the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas; and

- Reduce the potential for contaminants in soil or fill materials to migrate into groundwater and surface water.

NJDEP has promulgated residential and commercial direct-contact remediation standards for a list of chemicals, including arsenic and lead. There are a number of detections throughout the Peters Mine Pit Area, Cannon Mine Pit Area and the OCDA that exceed these standards. While the expected future land uses do not include unrestricted (residential) exposure scenarios for all the areas addressed by this remedy, EPA and NJDEP have concluded that NJDEP's RDCSRSs would be protective for the expected future land uses for ecological receptors and for human exposures, and has identified these standards as the cleanup levels to satisfy the RAOs. Table 6 identifies the cleanup levels for the Site.

Given the Peters Mine Pit Area's location within the Ringwood State Park, EPA's expectation is that the fulfillment of the RAO's for the Site would allow this area to be used for recreational use.

DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA §121(b)(1), 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, Section 121(b)(1) establishes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility or volume of hazardous substances. CERCLA §121(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants which at least attains Applicable or Relevant and Appropriate Requirements (ARARs) under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Potential applicable technologies and process options were identified and screened using effectiveness, implementability and cost as the criteria, with the most emphasis on the effectiveness of the remedial technology. Those technologies and process options which passed the initial screening were assembled into remedial alternatives for waste and soil contained in the Peter Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas.

The construction time for each of the alternatives for the Peter Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas only reflects the time necessary to construct the alternative and does not include the time required to conduct pre-design investigations, design the remedy, negotiate the performance of the remedy with the potentially responsible parties or procure contracts for the design and construction of the remedy. EPA expects that the RAOs will be achieved upon completion of construction for those alternatives which are determined to be protective of human health and the environment.

All of the alternatives, with the exception of Alternative 7 for the Peters Mine Pit Area, Alternative 5 for the Cannon Mine Pit Area and Alternatives 5A and 5B for the OCDA would result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, and would require that a statutory review be conducted within five years after initiation of the remedial action to ensure that the remedies are, or will be protective of human health and the environment.

Peters Mine Pit Area

Alternative 1 – No Action

Section 300.430(e)(6) of the NCP (40 CFR §300.430(e)(6)), requires that the No Action alternative be considered as a baseline for comparison with other alternatives. Under this alternative, no corrective action of any kind would be implemented to address contaminated soil and waste contained in the Peters Mine Pit Area.

Total Capital Cost	$0
Operation and Maintenance	$0 (Total)[1]
Total Present Net Worth	$0
Construction Duration	0 months

[1] Value represents total present net worth of Operation and Maintenance costs.

Alternative 2 – Institutional and Engineering Controls

Under this alternative, institutional controls, such as a Deed Notice, would be implemented to prevent use of the property in a manner that could damage or undermine the effectiveness of the remedy thereby creating potential exposure to contaminants in the fill material. In addition, engineering controls, such as the installation of fencing and the placement of boulders, would be implemented to restrict access. Inspections would be conducted on an annual basis to confirm that land use in the vicinity of the Peters Mine Pit Area is consistent with the selected remedy and to ensure that zoning and deed restrictions are complied with. In addition, long-term

groundwater monitoring would also be implemented as a component of this alternative. The scope of a groundwater remedy for the OU3 ROD is expected to address long-term groundwater monitoring that is needed for the entire Site, including the Peters Mine Pit Area. In the interim, for costing purposes, quarterly groundwater monitoring for a period of five years is assumed as a component of this alternative. However, as the program is implemented, EPA anticipates that the sampling frequency or number of wells sampled will be revised based on review of the groundwater analytical data.

Total Capital Cost	$17,800
Operation and Maintenance	$708,900 (Total)
Total Present Net Worth	$726,700
Construction Duration	1-2 months

Alternative 3 – Engineered Permeable Cap of Peters Mine Pit Area with Institutional Controls, Peters Mine Pit Pond would Remain

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. In addition, a two-foot thick clean soil cover would be placed over the Peters Mine Pit and the surrounding fill area. The pit would not be filled in prior to placement of the soil cover, leaving the pit topographically lower than the surrounding area and enabling the restoration of the pond.

Prior to placement of the soil cover, the pit would be dewatered and the fill material compacted. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations. A permeable geotextile liner would be placed over the compacted base, followed by eighteen inches of clean soil and six inches of topsoil. The geotextile fabric is intended to minimize the possibility of cap failure that could result from soil erosion and subsidence. Appropriate vegetation would then be established. The need for a passive gas management system would be evaluated during design of this alternative.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$2,560,800
Operation and Maintenance	$683,300 (Total)
Total Present Net Worth	$3,244,100
Construction Duration	5-6 months

Alternative 4A - Fill Peters Mine Pit, Permeable Engineered Cap of Peters Mine Pit Area and Institutional Controls, Peters Mine Pit Pond would not Remain

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. In addition, clean imported fill would be placed within the Peters Mine Pit to

raise the elevation of the pit to at least two feet above the average surface water elevation in the pit. Fill from areas surrounding the pit would then be consolidated within the pit. A geotextile fabric would be installed over the consolidated fill materials and a sufficient amount of clean fill and topsoil will be placed on top of the fabric to elevate the center of the cap to a level which is approximately three feet above that of the perimeter area and, thereby, create positive drainage away from the center of the cap onto the perimeter area and then away from this area onto surrounding terrain. As a result, this alternative removes the pond from the Peters Mine Pit Area. The need for a passive gas management system would be evaluated during design of this alternative.

Restoration of this area would also include vegetation with trees naturally present in Ringwood. The use of a permeable cap would permit the establishment of trees, including those with deep tap roots.

Prior to placement of the soil cover, the pit would be dewatered and the fill material compacted. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$4,345,500
Operation and Maintenance	$765,500 (Total)
Total Present Net Worth	$5,111,000
Construction Duration	8-9 months

Alternative 4B - Fill Peters Mine Pit, Impermeable Engineered Cap of Peters Mine Area and Institutional Controls, Peters Mine Pit Pond would not Remain

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. In addition, clean imported fill would be placed within the Peters Mine Pit to raise the elevation of the pit to at least two feet above the average surface water elevation in the pit. Fill from areas surrounding the pit would then be consolidated within the pit. The area surrounding the pit would be backfilled with clean soil, and a geosynthetic clay liner (GCL) would be installed over the filled pit. A vegetative and protective soil cap consisting of 18 inches of clean fill and six inches of topsoil would then be installed to protect the GCL. Because the GCL is impermeable, a passive methane gas management system would need to be installed. This alternative also removes the pond from the Peters Mine Pit Area.

Prior to placement of the cap, the pit would be dewatered and the fill material compacted. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted

to verify that the base for the cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$4,476,800
Operation and Maintenance	$765,500 (Total)
Total Present Net Worth	$5,242,300
Construction Duration	9-10 months

Alternative 4C - Fill Peters Mine Pit, Impermeable Engineered Cap of Peters Mine Area, Barrier Wall and Institutional Controls, Peters Mine Pit Pond would not Remain

This alternative is the same as Alternative 4B except that it would include the installation of a bentonite slurry wall or similar subsurface barrier wall surrounding the pit beginning at the ground surface and extending into the underlying competent bedrock to minimize the potential for overburden groundwater flow through the pit area. Groundwater within the bedrock would not be altered by the barrier wall as it would only extend 1 to 2 feet into the bedrock.

Total Capital Cost	$6,508,600
Operation and Maintenance	$765,500 (Total)
Total Present Net Worth	$7,274,100
Construction Duration	10-11 months

Alternative 5 - In-Situ Stabilization for Entire Peters Mine Pit Area with Institutional Controls, Peters Mine Pit Pond would Remain

Under this alternative, the institutional controls described in Alternative 2 would be implemented. All soil and fill materials within and surrounding the Peters Mine Pit would be stabilized in place by mixing the soil/fill material with an admixture, such as Portland cement, fly ash and/or bentonite. Conventional construction equipment, specialized injection systems, and/or specialized power augers would be utilized to achieve adequate mixing of the soil/fill material and the admixture.

After the stabilized material has solidified, at least one foot of soil would be placed over the area and seeded to reestablish vegetation. The pit would be left topographically lower than the surrounding area, which would allow restoration of the pond.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$25,792,200
Operation and Maintenance	$704,600 (Total)

Total Present Net Worth	$26,496,800
Construction Duration	22-23 months

Alternative 6A - Removal and Off-Site Disposal of Historic Fill Surrounding Peters Mine Pit, Fill Peters Mine Pit and Permeable Engineered Cap of Peters Mine Pit with Engineering and Institutional Controls, Peters Mine Pit Pond would not Remain

Under this alternative institutional controls, such as a Deed Notice, would be applied to this area to prevent uses other than for conservation land/recreational activities. In addition, the need for engineering controls, such as the installation of warning signs and the placement of boulders, to restrict access to this area by ATVs and other vehicles would be considered during the remedial design and included if necessary. Soil and fill material from the fill area surrounding the Peters Mine Pit would be excavated down to native soil, bedrock or to the water table, whichever is encountered first. If drums of waste or paint sludge are encountered, the excavation would continue until these materials are removed. While this alternative assumes that all excavated soil and fill would be disposed of off-site at an appropriately permitted facility, the segregation and reuse of suitable non-hazardous soil and fill as fill for the pit could be considered during design of this alternative. Clean imported fill would be placed within the Peters Mine Pit to raise the elevation of the pit to at least two feet above the average surface water elevation in the pit. Debris-free mine tailings from the OCDA may be used in lieu of imported fill to raise the elevation of the pit. The area surrounding the pit would be filled with clean soil. A geotextile fabric would be installed over the fill materials and a sufficient amount of clean fill and topsoil will be placed on top of the fabric to elevate the center of the cap to a level which is approximately three feet above that of the perimeter area and, thereby, create positive drainage away from the center of the cap onto the perimeter area and then away from this area onto surrounding terrain. The need for a passive gas management system would be evaluated during the design of this alternative.

Restoration of this area would also include vegetation with trees naturally present in Ringwood. The use of a permeable cap would permit the establishment of trees, including those with deep tap roots.

Prior to placement of the soil cover, the pit would be dewatered and the fill material compacted. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$9,457,000
Operation and Maintenance	$1,463,600 (Total)
Total Present Net Worth	$10,920,600
Construction Duration	8-9 months

Alternative 6B - Removal and Off-Site Disposal of Historic Fill Surrounding Peters Mine Pit, Fill Peters Mine Pit, Barrier Wall and Impermeable Engineered Cap of Peters Mine Pit with Engineering and Institutional Controls, Peters Mine Pit Pond would not Remain

Under this alternative, the institutional and engineering controls would be implemented as described in Alternative 6A. Soil and fill material from the fill area surrounding the Peters Mine Pit would be excavated down to native soil, bedrock or to the water table, whichever is encountered first. If drums of waste or paint sludge are encountered, the excavation would continue until these materials are removed. While this alternative assumes that all excavated soil and fill would be disposed of off-site at an appropriately permitted facility, the segregation and reuse of suitable non-hazardous soil and fill as fill for the pit could be considered during design of this alternative. Clean imported fill would be placed within the Peters Mine Pit to raise the elevation of the pit to at least two feet above the average surface water elevation in the pit. A bentonite slurry wall, or similar subsurface barrier wall, would be installed surrounding the pit beginning at the ground surface and extending into the underlying competent bedrock to minimize the potential for overburden groundwater flow through the pit area. The area surrounding the pit would then be backfilled with clean soil, and an impermeable GCL would then be installed over the filled pit. A vegetative and protective soil cap consisting if eighteen inches of clean fill and six inches of topsoil would then be installed to protect the GCL. The use of a GCL would preclude the restoration of the area with trees, as tree roots could compromise the GCL.

Because the GCL is impermeable, a passive methane gas management system would need to be installed. This alternative also removes the pond from the Peters Mine Pit Area.

Prior to placement of the cap, the pit would be dewatered and the fill material compacted. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$11,327,500
Operation and Maintenance	$1,463,600 (Total)
Total Present Net Worth	$12,791,100
Construction Duration	14-15 months

Alternative 7 - Removal and Off-Site Disposal of All Fill Material, Peters Mine Pit Pond would Remain

Under this alternative, soil/fill material within the Peters Mine Pit and surrounding fill area would be excavated to bedrock or clean overburden and transported off-site for disposal or recycling at an appropriately permitted facility. Post excavation soil sampling would be

conducted in the base and sidewalls of the soil excavations to confirm that all contamination has been addressed. The area would then be backfilled with clean fill to a level which would permit the establishment of a pond. Long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$41,305,600
Operation and Maintenance	$445,800 (Total)
Total Present Net Worth	$41,751,400
Construction Duration	25-26 months

Cannon Mine Pit Area

Alternative 1 – No Action

No corrective action of any kind would be implemented under this alternative. The No Action Alternative was retained, as required by the NCP, and provides a baseline for comparison with other alternatives.

Total Capital Cost	$0
Operation and Maintenance	$0 (Total)
Total Present Net Worth	$0
Timeframe	0 months

Alternative 2 – Institutional and Engineering Controls

Under this alternative, institutional controls would be implemented to prevent use of the property in a manner that could damage or undermine the effectiveness of the remedy thereby creating potential exposure to contaminants in the fill material. In addition, engineering controls such as the installation of fencing and the placement of boulders, would be implemented to restrict access. Inspections would be conducted on an annual basis to confirm that land use in the vicinity of the Cannon Mine Pit Area is consistent with the selected remedy and to ensure that zoning and deed restrictions are complied with. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. The selection of a groundwater remedy for the operable unit 3 ROD will address long-term groundwater monitoring that is needed for the for the entire site including the Cannon Mine Pit Area. In the interim, for costing purposes, annual groundwater monitoring for a period of five years is assumed as a component of this alternative. However, as the program is implemented the sampling frequency or number of wells sampled may be revised based on review of the groundwater analytical data.

Total Capital Cost	$42,800
Operation and Maintenance	$384,300 (Total)
Total Present Net Worth	$427,100
Construction Duration	1-2 months

Alternative 3A – Permeable Engineered Cap of the Cannon Mine Pit Area

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. Shallow fill materials located around the Cannon Mine Pit would be consolidated into the pit. Pit fill material would then be compacted and clean fill material would be placed within the pit to raise the grade as necessary to promote drainage off of the cap. A two-foot thick engineered soil cap, consisting of a geotextile fabric and a minimum of eighteen inches of clean soil and six inches of topsoil, would then be constructed over the Cannon Mine Pit. The geotextile fabric is intended to minimize the possibility of cap failure that could result from soil erosion and subsidence. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations. The need for a passive gas management system would also be evaluated during design of this alternative.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$974,600
Operation and Maintenance	$374,900 (Total)
Total Present Net Worth	$1,349,500
Construction Duration	5-6 months

Alternative 3B – Impermeable Engineered Cap of the Cannon Mine Pit Area

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. Shallow fill materials located around the Cannon Mine Pit would be consolidated into the pit. Pit fill material would then be compacted and clean fill material would be placed within the pit to raise the grade as necessary to promote drainage off of the cap. A GCL would then be placed over the pit, followed by the placement of a soil cover to protect the liner and to allow vegetation to be established. Because the GCL is impermeable, a passive methane gas management system would need to be installed. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$1,214,900
Operation and Maintenance	$374,900 (Total)
Total Present Net Worth	$1,589,800
Construction Duration	5-6 months

Alternative 4 – In-Situ Stabilization of the Entire Cannon Mine Pit Area

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. Fill materials within and surrounding the Cannon Mine Pit would be stabilized in place by mixing the soil/fill material with an admixture, such as Portland cement, fly ash and/or bentonite. Conventional construction equipment, specialized injection systems, and/or specialized power augers would be utilized to achieve adequate mixing of the soil/fill material and the admixture. After the stabilized material has solidified, clean soil would be placed in low-lying areas to ensure drainage of surface water runoff. A soil cover consisting of a minimum of eighteen inches of clean soil and six inches of topsoil, would then be constructed over the Cannon Mine Pit to allow vegetation to be established.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$5,926,300
Operation and Maintenance	$374,900 (Total)
Total Present Net Worth	$6,301,200
Construction Duration	7-8 months

Alternative 5 – Removal and Off-Site Disposal of All Industrial and Municipal Fill Material within the Cannon Mine Pit Area

Under this alternative, all of the fill/waste material within the Cannon Mine Pit Area would be excavated and disposed of off-site at an appropriately permitted facility. The mine tailings and blast rock at the bottom of the pit would not be removed. The pit would then be backfilled with clean fill material and graded to achieve a relatively flat topography. A minimum of six inches of top soil would be placed over this area and vegetation will be established. Long-term groundwater monitoring would also be implemented as a component of this alternative. The selection of a groundwater remedy for the operable unit 3 ROD, which is anticipated within the next few years, will address long-term groundwater monitoring that is needed for the for the entire site including the Cannon Mine Pit Area. In the interim, for costing purposes, annual groundwater monitoring of a subset of existing wells surrounding the Cannon Mine Pit Area for a period of five years is assumed as a component of this alternative. However, as the program is implemented the sampling frequency or number of wells sampled may be revised based on review of the groundwater analytical data.

Total Capital Cost	$10,844,200
Operation and Maintenance	$168,500 (Total)
Total Present Net Worth	$11,012,700
Construction Duration	14-15 months

Alternative 6 – Relocation of Mine Tailings from the O'Connor Disposal Area and Placement of a Permeable Engineered Cap

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. Existing pit fill material would be compacted and mine tailings from the OCDA would be placed within the pit to raise the grade as necessary to promote drainage off of the cap. A two-foot thick engineered soil cap, consisting of a minimum of eighteen inches of clean soil and six inches of topsoil, would then be constructed over the Cannon Mine Pit. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. In addition, the potential for subsidence would be considered during design evaluations. It is expected that a passive methane gas management system would need to be installed as part of this alternative because the mine tailings would become relatively impermeable once compacted.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$1,065,800
Operation and Maintenance	$347,500 (Total)
Total Present Net Worth	$1,413,300
Construction Duration	5-6 months

O'Connor Disposal Area

Alternative 1 – No Action

No remedial action of any kind would be implemented under this alternative. The No Action Alternative was retained, as required by the NCP, and provides a baseline for comparison with other alternatives.

Total Capital Cost	$0
Operation and Maintenance	$0 (Total)
Total Present Net Worth	$0
Timeframe	0 months

Alternative 2 – Institutional and Engineering Controls

Under this alternative, institutional controls would be implemented to prevent use of the property in a manner that could damage or undermine the effectiveness of the remedy thereby creating potential exposure to contaminants in the fill material. In addition, engineering controls such as the installation of fencing and the placement of boulders, would be implemented to restrict access. Inspections would be conducted on an annual basis to ensure that the implemented engineering controls remain protective and to confirm that land use in the vicinity of the OCDA is consistent with the selected remedy. In addition, long-term groundwater monitoring would

also be implemented as a component of this alternative. The selection of a groundwater remedy for the operable unit 3 ROD will address long-term groundwater monitoring that is needed for the for the entire site including the OCDA. In the interim, for costing purposes, annual groundwater monitoring for a period of five years is assumed as a component of this alternative. However, as the program is implemented the sampling frequency or number of wells sampled may be revised based on review of the groundwater analytical data.

Total Capital Cost	$111,500
Operation and Maintenance	$320,500 (total)
Total Present Net Worth	$432,000
Construction Duration	1-2 months

Alternative 3 – Permeable Engineered Cap – Minimal Grading

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. Minimal grading of fill materials would be conducted to ensure drainage from this area, fill materials would be compacted and a two-foot thick soil cap would be installed over the fill materials. The soil cap would consist of a geotextile fabric, eighteen inches of clean soil and six inches of top soil. The geotextile fabric is intended to minimize the possibility of cap failure that could result from soil erosion and subsidence. Vegetation would also be restored in this area. Because there are wetlands within the area to be capped, these wetlands would be restored within the OCDA. The need for a passive gas management system would be evaluated during design of this alternative.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$4,947,500
Operation and Maintenance	$484,900 (total)
Total Present Net Worth	$5,432,400
Construction Duration	13-14 months

Alternative 4A – Site Grading and Permeable Engineered Cap

Under this alternative, the institutional and engineering controls described in Alternative 2 would be implemented. Fill from the fringe areas of this area would be consolidated to the center of this area to minimize the size of the required cap and to permit the potential reuse of this area**.** During consolidation of the fill material from the fringe areas, the soil/fill material will be visually inspected to verify the findings of the RI. Should anything be encountered in the fill that is not suitable for reuse as sub-grade fill underneath the engineered cap, it will be segregated and transported for off-site disposal as the work progresses. After consolidation, fill materials would be compacted and a two-foot thick soil cap would be installed over the fill materials. The soil cap would consist of a geotextile fabric, eighteen inches of clean soil and six inches of top soil. Vegetation would also be restored in this area. The excavated areas beyond the engineered cap where soil/fill would be removed for consolidation under the cap would be backfilled with six

inches of certified clean fill and rough graded to ensure proper drainage prior to revegetation. The cleaned up fringe areas would encompass approximately four acres. Because there are wetlands that would be disturbed during implementation of this remedy, these wetlands would be restored within the OCDA. The need for a passive gas management system would be evaluated during design of this alternative.

Long-term monitoring and maintenance of the capped area would be required. In addition, long-term groundwater monitoring would also be implemented as a component of this alternative. Long-term groundwater monitoring would be addressed as described in Alternative 2.

Total Capital Cost	$4,865,100
Operation and Maintenance	$484,900 (total)
Total Present Net Worth	$5,350,000
Construction Duration	13-14 months

Alternative 4B – Site Grading and Impermeable Engineered Cap

This alternative is the same as Alternative 4A, except that a GCL would be placed over the fill materials instead of a two-foot thick soil cap. Soil cover would be placed over the liner to protect the liner and to allow vegetation to be established. Because the GCL is impermeable, a passive methane gas management system would need to be installed. Soil testing, such as geotechnical, agronomic, chemical and compaction testing would be conducted to verify that the base for the cap achieves design specifications prior to placing the cover.

Total Capital Cost	$5,950,200
Operation and Maintenance	$484,900 (total)
Total Present Net Worth	$6,435,100
Construction Duration	15-16 months

Alternative 5A – Removal of Fill for Off-Site Disposal with On-Site Reuse of Mine Tailings

This alternative provides for the excavation of all soil/fill material from the OCDA down to the top of the underlying mine tailings and disposal and/or recycling of all of the excavated material at appropriately permitted off-site disposal facilities. The undisturbed mine tailings at the bottom of the OCDA which are not comingled with wastes and fill materials could be removed and potentially reused onsite within the Peters Mine Pit Area in place of clean fill that would otherwise need to be transported through the community.

Following the excavation and disposition of fill and tailings, six inches of topsoil would be placed throughout the excavated area to enable revegetation of the OCDA. Because there are wetlands that would be disturbed during implementation of this remedy, these wetlands would be restored within the OCDA. The selection of a groundwater remedy for the operable unit 3 ROD will address long-term groundwater monitoring that is needed for the for the entire site including the OCDA. In the interim, for costing purposes, annual groundwater monitoring of a subset of existing wells surrounding the OCDA would be performed for a period of five years is assumed as a component of this alternative. However, as the program is implemented the sampling

frequency or number of wells sampled may be revised based on review of the groundwater analytical data.

Total Capital Cost	$32,437,200
Operation and Maintenance	$168,700 (total)
Total Present Net Worth	$32,605,900
Construction Duration	23-24 months

Alternative 5B – Removal of Fill for Off-Site Disposal

This alternative is the same as Alternative 5A except that instead of reusing a portion of the mine tailings as fill for the Peters Mine Pit, all undisturbed mine tailings located beneath the fill material would be left in place in the OCDA.

Total Capital Cost	$26,023,100
Operation and Maintenance	$168,700 (total)
Total Present Net Worth	$26,191,800
Construction Duration	18-20 months

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting remedies for Sites, EPA considers the factors set out in CERCLA § 121, 42 U.S.C. § 9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 CFR § 300.430(e)(9), EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies*, and OSWER Directive 9355.3-01. The detailed analysis consisted of an assessment of the individual alternatives against each of nine evaluation criteria at 40 C.F.R. § 300.430(e)(9)(iii) and a comparative analysis focusing upon the relative performance of each alternative against the criteria.

Threshold Criteria - The following two criteria are known as "threshold criteria" because they are the minimum requirements that each alternative must meet in order to be eligible for selection as a remedy:

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.

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 that are identified by a state 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 invoking a waiver.

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:

3. *Long-term effectiveness and permanence:* A similar degree of 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.

4. *Reduction of toxicity, mobility, or volume through treatment:* 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.

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.

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.

7. Cost: *Includes estimated capital and O&M costs, and net present worth value of capital and O&M costs.*

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 alternative or cause another response measure to be considered.

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 remedies.

9. *Community acceptance:* Summarizes the public's general response to the remedial alternatives described in the Proposed Plan and the FS reports. This assessment includes determining which of the remedial alternatives the community supports, opposes, and/or has reservations about.

A comparative analysis of the remedial alternatives considered for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas, based upon the above evaluation criteria, follows.

Peters Mine Pit Area

Overall Protection of Human Health and the Environment

Alternative 1 would not provide for protection of human health and the environment as waste material would remain at the Site. In addition, no action would be taken to restrict exposure to contaminated fill material. While Alternative 2 would rely on institutional and engineering controls to reduce the likelihood of exposure to contaminated fill material, the potential for exposure to waste material would remain. Therefore, Alternative 2, while protective, would not be as protective of human health and the environment as other alternatives.

Alternatives 3 through 7 eliminate exposure pathways to the waste material by either containing the fill under an engineered cap, solidifying the fill material and/or through excavation and off-site disposal of the fill material, and are protective.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Alternatives 1 would not address fill material which contains contaminants at levels in excess of promulgated soil standards and would not comply with ARARs.

Alternatives 2 through 7 address the contaminated fill material by either containing the fill behind boulders or under an engineered cap, solidifying the fill material and/or through

excavation and off-site disposal of the fill material. Therefore, Alternatives 2 through 7 will comply with chemical specific ARARs, including the State of New Jersey's RDCSRSs by mitigating the potential for exposure to contaminated fill. In addition, Alternatives 2 through 7 are expected to comply with location-specific and action-specific ARARs, including the mitigation and restoration of wetlands disturbed during the implementation of these remedial alternatives. Therefore, Alternatives 2 through 7 are expected to comply with all applicable ARARs.

Long-Term Effectiveness and Permanence

The No Action Alternative would not be effective in the long-term because no actions would be taken to address the contamination. Alternative 2 provides some effectiveness by restricting land use and can provide some effectiveness in the long-term as long as these institutional controls are maintained. However, its overall effectiveness is limited in comparison to Alternatives 3 through 7.

Alternatives 3, 4A, 4B and 4C employ engineered caps to protect against direct contact with contaminated fill material. In addition, for Alternatives 4A, 4B and 4C, the installation of these caps will also result in positive drainage away from the Peters Mine Pit, which is expected to reduce the amount of precipitation that percolates through the fill material, thereby reducing the potential for contaminants to leach from the fill to groundwater and to reduce the migration of contaminants to groundwater. Therefore, these alternatives and are considered to be effective. However, these engineered caps would need to be monitored and maintained to remain effective in the long term. Alternative 6A and Alternative 6B provides for the permanent removal of approximately 22,000 tons of relatively shallow fill material, in addition to the installation of a cover to prevent direct contact with the remaining fill material. Therefore, Alternative 6A and Alternative 6B are considered to be more effective in the long term than Alternatives 3, 4A, 4B and 4C. However, maintenance of the engineered cap will still be required in the long term.

Alternative 5 would permanently stabilize the contaminated fill material, which would serve to minimize the potential for exposure to contaminants. In addition, stabilization of the fill material would also reduce or eliminate the mobility of contaminants in the fill. Alternative 7 would permanently remove all of the contaminated fill material from the Peters Mine Pit Area of the Site. Therefore, Alternatives 5 and 7 are the most effective at achieving long-term effectiveness and permanence at the Site.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternatives 1 and 2 would not treat the contaminants in the fill material and would not include any actions that would reduce their toxicity, mobility, or volume.

Alternatives 3 and 4A do not employ any treatment that would reduce the toxicity, mobility or volume of contaminants. However, these alternatives would reduce the mobility of contaminants present in the fill material by reducing the infiltration of precipitation by capping the fill. Installation of an engineered cap would not reduce the toxicity or volume of contaminated fill. Alternatives 4B would further reduce the mobility of contaminants through installation of an

impermeable liner, which would minimize the leaching of contaminants by precipitation. Alternative 4C would further reduce the mobility of contaminants through installation of a subsurface barrier wall in addition to an impermeable liner. The subsurface barrier wall would restrict the movement of overburden groundwater through the fill material and minimize associated leaching of contaminants. Alternative 6A and Alternative 6B provide for the permanent removal of approximately 22,000 tons of fill in addition to the installation of a cover, and would reduce the volume of contaminated fill at the Site as well as the mobility of contaminants.

Alternative 5 would reduce both the toxicity and mobility of contaminants through stabilization of the contaminated fill. However, the volume of contaminated fill material would not be reduced through implementation of this alternative. Alternative 7 would provide for the greatest reduction in the volume of contaminants in the Peters Mine Pit Area, as all of the fill material in the pit would be permanently removed from the Site.

Short-Term Effectiveness

The No Action Alternative includes no construction and would have no short-term impacts at the Site. Alternative 2 provides for minimal construction to install engineering controls and would have very limited short-term impacts on the community.

Alternative 3, which consists of capping of the fill material in place, would minimize impacts to workers and the community because the handling of contaminated fill is minimized. However, workers and the community could be impacted by dust and truck traffic associated with the transport and placement of clean soil during installation of the cap. Alternatives 4A, 4B and 4C are expected to have greater potential impacts on the community and workers due to the additional handling and transportation of impacted fill material. During implementation of these alternatives, workers would have the potential to come into contact with contaminated fill material while consolidating fill materials and installing the cap.

Alternative 5 leaves the impacted fill material in place, but there is a higher potential for worker exposure to impacted fill material as a result of the mixing process. Workers and the surrounding community may also have some additional potential for exposure to contaminants through dust and air emissions from the mixing process, though plans would be developed to mitigate dust and air emissions.

Alternative 6A and Alternative 6B pose a greater risk of exposure to contaminated fill material than the previously discussed alternatives due to the excavation of fill material. Workers and the community could potentially be exposed to fill material during the excavation, segregation, loading and off-site disposal of the contaminated fill. Furthermore, the Ringwood community would be subjected to the additional truck traffic associated with off-site disposal of the fill material.

Alternative 7 presents the greatest potential for impacts on the community and workers during implementation. The extensive excavation, loading and off-site transportation of contaminated fill associated with this alternative presents the greatest potential for community and worker

exposure to contaminated material. It is estimated that more than 28,700 truck trips through the Ringwood community would be required to transport all of the waste material off site as part of this alternative. In addition, voids, large concrete structures and other barriers may be encountered during excavation of fill from the Peters Mine Pit, which could pose an additional hazard to Site workers.

Alternative 1 would require no time to implement since no action would be taken. Alternative 2 would require the least time to construct of the active remedies, because it only involves implementation of limited engineering controls. Alternatives 3, 4A, 6A, 4B, 4C and 6B would involve additional time to construct associated with construction of engineered caps. Alternatives 5 and 7 would involve the greatest construction time as they would involve either processing or excavation of all of the fill in the Peters Mine Pit.

Implementability

Alternative 1 is the most readily implementable as no action would be required. Alternative 2 would only involve the implementation of institutional controls and routine engineering controls, in addition to long-term groundwater monitoring and is also readily implementable.

Alternative 3 is expected to be the next easiest alternative to implement as the soil cap would be installed without the need to move fill materials to prepare the base for the cap. However, this alternative would require additional effort to dewater the pit and to handle the extracted groundwater. Alternatives 4A and 4B, while implementable, would require additional work to consolidate the fill material prior to installation of the cap. Alternative 6A, while also implementable, will require additional work to excavate the impacted fill material down to the water table prior to placement of clean fill material and installation of a soil cover.

Alternatives 4C and 6B would require more extensive excavation work with specialized equipment to install an impermeable barrier wall into the bedrock. Equipment, such as continuous excavation trenchers with ripping teeth or percussive chisels, may be required to remove the top one to two feet of bedrock prior to installation of the barrier wall. Therefore, Alternatives 4C and 6B are expected to be more difficult to implement than Alternatives 1, 2, 3, 4A, 4B and 6A.

Alternatives 5 and 7 are expected to be the most difficult of the alternatives to implement. Alternative 5 would likely require specialized equipment to mix admixture into the fill material at depth. Alternative 7 may also require the use of specialized equipment to excavate fill material to a depth of 90 feet below ground surface. In addition, the heterogeneity of the fill material, including the potential presence of concrete structures and metal, and the potential structural instability of the pit would complicate implementation of these alternatives.

Cost

Alternative 1 would have no cost as no action would be required. Alternative 2 would be expected to have minimal costs, which are primarily due to the implementation of a long-term groundwater monitoring program.

The total estimated present worth costs for the remaining alternatives, from lowest to highest cost, are as follows: Alternative 3 ($3,244,100), Alternative 4A ($5,111,000), Alternative 4B ($5,242,300), Alternative 4C ($7,274,100), Alternative 6A ($10,920,600), Alternative 6B ($12,791,100), Alternative 5 ($26,496,800) and Alternative 7 ($41,751,400). Alternatives 5 and 7 are significantly more costly than the other alternatives due to the need to effectively treat or remove all of the fill material contained within the Peters Mine Pit to an approximate depth of 90 feet below ground surface. Alternative 6A and Alternative 6B are more costly than Alternatives 3, 4A, 4B and 4C due to the added cost of excavation and off-site disposal of fill material down to the water table.

The cost estimates included in this ROD are expected to be accurate within a range of +50 percent to -30 percent. Total present worth costs were calculated assuming a discount rate of seven percent.

State/Support Agency Acceptance

The State of New Jersey concurs with the selected remedy. A letter of concurrence is attached as Appendix V.

Community Acceptance

Community acceptance of the selected remedy for the Peters Mine Pit Area was evaluated based upon the comments received during the public comment period. The majority of the comments received from the public at the November 7, 2013 public meeting, and in writing subsequent to this meeting, did not fully support the selected remedy for the Peters Mine Pit Area. The public generally opposes any remedy which does not provide for the complete excavation and off-site disposal of all of the fill material contained within the Peters Mine Pit.

The Borough of Ringwood supports capping of the Peters Mine Pit Area but does not support the excavation of fill material located above the water table. The Borough of Ringwood believes that the excavation of this fill material creates undue risks while providing no additional protection of human health and the environment.

Cannon Mine Pit

Overall Protection of Human Health and the Environment

Alternative 1 would not provide for protection of human health and the environment as waste material would remain at the Site. In addition, no action would be taken to restrict exposure to fill material. While Alternative 2 would rely on institutional and engineering controls to reduce the likelihood of exposure to fill material, the potential for exposure to waste material would remain. Therefore, Alternative 2, while protective, would not be as protective of human health and the environment as other alternatives.

Alternatives 3A, 3B and 6 would be protective of human health and the environment by

eliminating exposure pathways to the waste material by containing the contaminated fill under an engineered cap. Alternative 4 provides for protection of human health and the environment by stabilizing the fill material and covering it with soil, thereby eliminating the potential for exposure to any contaminants in the fill material. Alternative 5 would eliminate the potential for exposure to contaminants in the fill material in the Cannon Mine Pit by providing for the complete excavation and off-site disposal of the fill material. Therefore, Alternative 5 would also provide for protection of human health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Under Alternative 1, no action would be taken address fill material which contains contaminants at levels in excess of promulgated soil standards. Therefore, Alternative 1 would not comply with chemical-specific ARARs.

Alternative 2 would address fill material which contains contaminants at levels in excess of New Jersey's RDCSRSs by restricting access to the fill by installing a fence. Therefore, Alternative 2 would be expected to comply with chemical-specific ARARs. Alternatives 3A, 3B, and 6 would address the contaminated fill material by containing the fill material under an engineered cap, thereby removing the potential for exposure to the fill. These alternatives would, therefore, comply with chemical-specific ARARs. Alternatives 4 and 6 would comply with chemical-specific ARARs by either solidifying the fill material which exceeds RDCSRSs or through excavation and off-site disposal of the fill material. In addition, all of the alternatives are expected to comply with location-specific and action-specific ARARs. Therefore, Alternatives 2 through 6 are expected to comply with all applicable ARARs.

Long-Term Effectiveness and Permanence

The No Action Alternative would not be effective in the long-term because no action would be taken to address the contamination. Alternative 2 provides some effectiveness by restricting land use. However, the potential for human and ecological exposure would remain. Therefore, its overall effectiveness is limited in comparison to other alternatives.

Alternatives 3A, 3B and 6 employ covers to protect against exposure with contaminated fill material. In addition, the installation of these caps will also result in positive drainage away from the Cannon Mine Pit, which is expected to reduce the amount of precipitation that percolates through the fill material, thereby reducing the potential for contaminants to leach from the fill to groundwater and to limit the migration of contaminants to groundwater. Therefore, these alternatives are considered to be effective in the long term. However, these covers would need to be routinely inspected and maintained to remain effective in the long term.

Alternative 4 would provide for permanent stabilization of the contaminated fill material, followed by the installation of a soil cover which would minimize the potential for direct contact with contaminants and the potential migration of contaminants to groundwater. Furthermore, Alternative 5 would remove all of the fill material above the blast rock from the Site, permanently eliminating the potential for exposure to this fill material at the Site. Therefore, Alternatives 4 and 5 are the most effective in the long term.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternatives 1 and 2 would not treat the contaminants and would not reduce their toxicity, mobility, or volume.

Alternatives 3A, 3B and 6 would not employ any treatment that would reduce the toxicity or volume of contaminants. However, these alternatives would provide for the installation of an engineered cap, which would reduce the mobility of contaminants present in the fill material by reducing the infiltration of precipitation through the fill.

Alternative 4 would reduce both the toxicity and mobility of contaminants through stabilization of the contaminated fill. However, the volume of contaminated fill material would not be reduced through implementation of this alternative. Alternative 5 would provide for the greatest reduction in the toxicity, mobility and volume of contamination in the Cannon Mine Pit Area by completely removing all of the fill located above the blast rock from the Site.

Short-Term Effectiveness

The No Action Alternative includes no construction and would have no short-term impacts at the Site. Alternative 2 provides for minimal construction to install engineering controls and would have very limited short-term impacts on the community.

Alternative 3A and 3B, which consist of capping fill material in place, would minimize impacts to workers and the community because the handling of contaminated fill is minimized. However, workers and the community could be impacted by dust and truck traffic associated with the transport and placement of clean soil during installation of the cap. Alternative 6 is expected to have greater potential impacts on workers and the community than Alternatives 3A and 3B, due to the need to transport and handle mine tailings from the OCDA.

Alternative 4 leaves the impacted fill material in place, but there is a higher potential for worker exposure to impacted fill material as a result of the mixing process. In addition, machinery associated with the mixing process may present additional physical hazards and safety concerns. Workers and the surrounding community may also have some additional potential for exposure to contaminants through dust and air emissions from the mixing process.

Alternative 5 presents the greatest potential for impacts on the community and workers during implementation. The extensive excavation, loading and off-site transportation of contaminated fill associated with this alternative presents the greatest potential for community and worker exposure to contaminated material. It is estimated that more than 7,800 truck trips through the Ringwood community would be required to transport all of the waste material off site as part of this alternative. The impacts associated with these activities would need to be addressed through the development of transportation control plans, air monitoring and dust mitigation control plans.

Alternative 1 would require no time to implement since no action would be taken. Alternative 2 would require the least time to construct of the active remedies, because it only involves

implementation of limited engineering controls. Alternatives 3A, 3B, 6 and 4 would involve additional time to construct associated with construction of engineered caps or stabilization of the fill. Alternative 5 would involve the greatest construction time as it would require excavation of all of the fill above the blast rock in the Cannon Mine Pit.

Implementability

Alternative 1 is the most readily implementable as no action would be required. Alternative 2 would only involve the implementation of institutional controls and routine engineering controls, in addition to long-term groundwater monitoring and is also readily implementable.

Alternative 3A and 3B are expected to be the next easiest alternatives to implement as construction of the engineered caps can be conducted with minimal disruption of the existing fill materials in the pit and with minimal consolidation of materials surrounding the pit. In addition, standard construction techniques and equipment would be utilized. Alternative 6, which also provides for the construction of an engineered cap, is expected to be more difficult to implement than Alternatives 3A and 3B, due to the need to excavate and transport mine tailings from the OCDA to the Cannon Mine Pit Area.

Alternatives 4 and 5 are expected to be the most difficult of the alternatives to implement. Alternative 4 would likely require specialized equipment to mix admixture into the fill material at depth. A treatability study would also need to be conducted to ensure that the selected stabilizing agent can effectively stabilize all contaminants of concern. In addition, if large items or items that may entangle the mixing equipment are present in the fill, these items could cause equipment damage and breakdowns. Alternative 5 will require the use of sloping and shoring systems to allow for excavation of fill to the depth of blast rock. In addition, the heterogeneity of the fill material and the potential presence of voids in the pit would complicate implementation of these alternatives.

Cost

Alternative 1 would have no cost as no action would be required. Alternative 2 would be expected to have minimal costs, which are primarily due to the implementation of a long-term groundwater monitoring program.

The total estimated present worth costs for the remaining alternatives, from lowest to highest cost, are as follows: Alternative 3A ($1,349,500), Alternative 6 ($1,413,300), Alternative 3B ($1,589,800), Alternative 4 ($6,301,200), and Alternative 5 ($11,012,700). Alternatives 4 and 5 are significantly more costly than the other alternatives due to the need to effectively treat or remove all of the fill material contained within the Cannon Mine Pit to the depth of blast rock.

State/Support Agency Acceptance

The State of New Jersey concurs with the selected remedy. A letter of concurrence is attached as Appendix V.

Community Acceptance

Community acceptance of the selected remedy for the Cannon Mine Pit Area was evaluated based upon the comments received during the public comment period. The majority of the comments received from the public at the November 7, 2013 public meeting, and in writing subsequent to this meeting, did not support the selected remedy for the Cannon Mine Pit Area. The public generally opposes any remedy which does not provide for the complete excavation and off-site disposal of all of the fill material contained within the Cannon Mine Pit. The Borough of Ringwood supports capping of the Cannon Mine Pit Area.

O'Connor Disposal Area

Overall Protection of Human Health and the Environment

Alternative 1 would not provide for protection of human health and the environment as waste material would remain at the Site. In addition, no action would be taken to restrict exposure to fill material. While Alternative 2 would rely on institutional and engineering controls to reduce the likelihood of exposure to fill material, the potential for exposure to waste material would remain. Therefore, Alternative 2, while protective, would not be as protective of human health and the environment as Alternatives 3 through 5B.

Alternatives 3, 4A and 4B would protect human health and the environment by limiting potential exposure to fill materials by containing them with a cap; the caps would also reduce infiltration of precipitation through the fill materials and the potential for migration of contaminants from the fill into the groundwater and surface water. Because this disposal area is located directly adjacent to Peters Mine Road and is therefore readily accessible, it may be attractive to trespassers (potentially including ATV users) and, therefore, these capping alternatives would require diligent monitoring and maintenance to ensure the integrity of the caps over time. If the area was reused as the site of a Borough recycling center, concerns regarding damage to the cap and trespassing would be reduced. Alternatives 5A and 5B provide the greatest level of protection of human health and the environment at the OCDA as they provide for complete excavation and off-site disposal and/or reuse of the fill material, thereby removing all potential exposure pathways to these materials.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Under Alternative 1, no action would be taken address fill material which contains contaminants at levels in excess of promulgated soil standards. Therefore, Alternative 1 would not comply with chemical-specific ARARs.

Alternative 2 would address fill material which contains contaminants at levels in excess of New Jersey's RDCSRSs by restricting access to the fill by installing a fence. Therefore, Alternative 2 would be expected to comply with chemical-specific ARARs. Alternatives 3, 4A, and 4B would address the contaminated fill material by containing the fill material under an engineered cap, thereby removing the potential for exposure to the fill. These alternatives would, therefore, comply with chemical-specific ARARs. Alternatives 5A and 5B would comply with chemical-

specific ARARs through excavation and off-site disposal of the impacted fill material. In addition, all of the alternatives are expected to comply with location-specific and action-specific ARARs, including the mitigation and restoration of wetlands disturbed during the implementation of these remedial alternatives. Therefore, Alternatives 2 through 5B are expected to comply with all applicable ARARs.

Long-Term Effectiveness and Permanence

The No Action Alternative would not be effective in the long-term because no actions would be taken to address the contamination. Alternative 2 provides some effectiveness by restricting land use. However, the potential for human and ecological exposure would remain. Therefore, its overall effectiveness is limited in comparison to other alternatives.

Alternatives 3, 4A and 4B employ engineered caps to protect against exposure with contaminated fill material. In addition, the installation of these caps will also result in positive drainage away from the OCDA, which is expected to reduce the amount of precipitation that percolates through the fill material, thereby reducing the potential for contaminants to leach from the fill to groundwater and to limit the migration of contaminants to groundwater. Therefore, these alternatives are considered to be effective. However, these engineered caps would need to be maintained over the long term to remain effective. These alternatives would also leave waste within the State of New Jersey Category 1 stream buffer zone/floodplain of Park Brook which would potentially subject these engineering controls to additional maintenance issues associated with flooding and erosion. As noted above, because this disposal area is located directly adjacent to Peters Mine Road and is therefore readily accessible, it may be attractive to trespassers (potentially including ATV users) whose use could present some further maintenance challenges. If the area was reused as the site of a Borough recycling center, concerns regarding damage to the cap and trespassing would be reduced because the center would be in active use.

Alternatives 5A and 5B would provide for the removal of all of the contaminated fill material from the OCDA, permanently eliminating the potential for exposure to this fill material at the Site. Therefore, Alternatives 5A and 5B are the most effective in the long term. Additionally, Alternatives 5A and 5B would allow the community to continue to hunt game and gather plants according to their cultural and traditional practices without any inhibitions or restrictions that would be required under the other alternatives.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternatives 1 and 2 would not treat the contaminants and would not reduce their toxicity, mobility, or volume.

Alternatives 3, 4A and 4B would reduce the mobility of contaminants present in the fill material by reducing the infiltration of precipitation by capping the fill. In addition, installation of an engineered cover would reduce the potential of contaminated fill washing into the Park Brook during rain events. However, these alternatives would not reduce the toxicity or volume of contaminated fill.

Alternative 5A and 5B would provide for the greatest reduction in the toxicity, mobility and volume of contamination in the OCDA by permanently removing all of the contaminated fill from this area of the Site.

Short-Term Effectiveness

The No Action Alternative includes no construction and would have no short-term impacts at the Site. Alternative 2 provides for minimal construction to install engineering controls and would have very limited short-term impacts.

Alternative 3, which consist of capping fill material in place without consolidation of fill, would minimize impacts to workers and the community because the handling of contaminated fill is minimized. However, the community and workers could be affected by dust generated by trucks hauling clean soil to the Site for the cap, or during placement of soil during cap construction. Alternatives 4A and 4B are expected to have greater short term impacts on workers and the community than Alternative 3, due to the need for additional handling and consolidation of the contaminated fill. The potential exists for workers to come into contact with contaminated fill materials during the grading of materials necessary for implementation of these alternatives.

Alternative 5A and 5B present the greatest potential for impacts on the community and workers during implementation. The extensive excavation, loading and off-site transportation of contaminated fill associated with these alternatives presents the greatest potential for community and worker exposure to contaminated material. It is estimated that 12,519 truck trips through the Ringwood community would be required to transport all of the waste material off site under these alternatives. The impacts associated with these activities would need to be addressed through the development of transportation control plans, air monitoring and dust mitigation control plans.

Alternative 1 would require no time to implement since no action would be taken. Alternative 2 would require the least time to construct of the active remedies, because it only involves implementation of limited engineering controls. Alternatives 3, 4A and 4B would involve additional time to construct associated with construction of engineered caps. Alternatives 5A and 5B would involve the greatest construction time as they would involve excavation of all of the fill material from the OCDA.

Implementability

Alternative 1 is the most readily implementable as there are no activities associated with this alternative. Alternative 2 would only involve the implementation of institutional controls and routine engineering controls, in addition to long-term groundwater monitoring and is also readily implementable.

Alternatives 3, 4A and 4B are expected to be the next easiest alternatives to implement as they involve the construction of engineered caps over contaminated fill materials, which will be left in place beneath the caps. EPA anticipates that these alternatives can be implemented with standard construction techniques and equipment. While Alternative 3 provides for minimal

grading of fill before placement of a soil cap, the existing steep slope in this area raises concerns regarding slope stability during construction and the minimization of erosion of the cap and fill after construction. Alternatives 4A and 4B will require additional work during construction to consolidate fill material from the fringe areas of the OCDA to the center of this area prior to the installation of an engineered cap. However, these caps would have a more stable top and side slope than the cap that would be installed under Alternative 3. Furthermore, as discussed in more detail below, the Borough has informed EPA that it wishes to construct a new recycling center on the OCDA, and that it has also taken steps towards achieving that goal. If the area was reused as the site of a Borough recycling center, additional paving, grading and landscaping would add to the cap's stability.

Alternatives 5A and 5B, which involve excavation and off-site disposal of contaminated fill from the OCDA, are also considered to be implementable. It is expected that conventional construction equipment would be utilized to remove fill from this area, given that the depth of fill does not exceed 20 feet. However, dewatering of groundwater and/or diversion of a portion of the Park Brook may be required to remove fill located in some portions of this area.

Cost

Alternative 1 would have no cost as no action would be required. Alternative 2 would be expected to have minimal costs, which are primarily due to the implementation of a long-term groundwater monitoring program.

The total estimated present worth costs for the remaining alternatives, from lowest to highest cost, are as follows: Alternative 4A ($5,350,000), Alternative 3 ($5,432,400), Alternative 4B ($6,435,100), Alternative 5B ($26,191,800), and Alternative 5A ($32,605,900). Alternatives 5A and 5B are significantly more costly than the other alternatives as they provide for the complete removal and off-site disposal of contaminated fill material from the OCDA. Alternative 5A may achieve significant cost savings over Alternative 5B by providing for the reuse of mine tailings as fill for the Peters Mine Pit Area in lieu of off-site disposal.

State/Support Agency Acceptance

The State of New Jersey concurs with the selected remedy. A letter of concurrence is attached as Appendix V.

Community Acceptance

Community acceptance of the selected remedy for the OCDA was evaluated based upon the comments received during the public comment period. The majority of the comments received from the public at the November 7, 2013, public meeting, and in writing subsequent to this meeting support Alternative 5A, which is EPA's selected remedy for the OCDA. The public generally opposes any remedy which does not provide for the complete excavation and off-site disposal of all of the fill material contained within the OCDA, including Alternative 4A, which EPA has identified as a contingency remedy for this area of the Site.

The Borough of Ringwood disagrees with EPA's selection of Alternative 5A as the remedy for the OCDA. The Borough cites concerns that this area would not be backfilled to grade if Alternative 5A were implemented, leaving a sloped area that would limit reuse of the OCDA and potentially impact the stability of Peters Mine Road. However, the Borough supports selection of Alternative 4A, as it believes that this is the only alternative which would be protective of human health and the environment and leave this area in a state that would allow for it to be productively reused.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). Principal threat wastes are source materials that include or contain hazardous substances, pollutants or contaminants that act as a reservoir of contaminants that can migrate to groundwater, surface water or air, or acts as a source for direct exposure. 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. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. Non-principal threat wastes are those wastes that generally can be reliably contained and present only a low risk in the event of exposure.

The remedial alternatives that have been evaluated for the Peters Mine Pit, Cannon Mine Pit, and the OCDA would address paint sludge and drummed industrial waste which likely remain in these areas of the Site. However, principal threat wastes have not been identified at the Site.

SELECTED REMEDY

Peters Mine Pit Area

Based upon an evaluation of the results of Site investigations, input from the National Remedy Review Board (NRRB), the detailed analysis of the various remedial alternatives, and public comments, EPA has selected Alternative 6A (Removal and Off-Site Disposal of Historic Fill Surrounding Peters Mine Pit, Fill Peters Mine Pit and Permeable Engineered Cap of Peters Mine Pit with Engineering and Institutional Controls, Peters Mine Pit Pond would not Remain) as the remedy for the Peters Mine Pit Area of the Site. This alternative includes the following components:

- Dewatering of the Peters Mine Pit pond with proper disposal of removed water;

- Excavation of soil and fill material from the fill area surrounding the Peters Mine Pit down to native soil, bedrock or the water table, whichever is encountered first. If drums of waste or paint sludge are encountered, the excavation would continue until these materials are removed. Segregated non-hazardous soil or fill from this excavation, if suitable, may be reused as fill for the excavated area and/or the Peters Mine Pit; all other excavated material will be disposed of off-site at an appropriately permitted facility;

- Placement and compaction of a sufficient amount of clean fill in the Peters Mine Pit to raise the elevation to a level at least two feet above the average surface water elevation of the removed pond. Debris-free and non-hazardous mine tailings from the OCDA may also be used as fill for this purpose in lieu of importing clean fill from an off–site source;

- Placement and compaction of clean fill, as needed, to fill in and/or level off the excavated area surrounding the Peters Mine Pit;

- Recontour and take other measures, as needed, to prepare the surface of the Peters Mine Pit area to ensure that it provides an adequate base for a geotextile fabric and subsequent cap;

- Installation of a geotextile fabric over the fill materials in the Peters Mine Pit Area. This will be followed by the placement of a sufficient amount of clean fill and topsoil on top of the fabric to cap the Peters Mine Pit and elevate the center of the cap to a level which is at least three feet above that of the perimeter area and, thereby, create positive drainage away from the center of the cap onto the perimeter area and then away from this area onto surrounding terrain;

- Restoration of the Peters Mine Pit Area with a variety of trees and other vegetation which are indigenous to the Ringwood area, with the intent of making this an area that can be used for recreational purposes as part of Ringwood State Park;

- Implementation of institutional control(s), such as deed notice(s), to prevent use of the capped area for any purposes other than conservation land/recreational activities;

- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and

- Monitoring of groundwater quality in the Peter's Mine Pit Area until a groundwater remedy is selected for the Site.

As part of this remedy, it is estimated that 22,700 tons of fill material will be excavated from the fill area surrounding the Peters Mine Pit. Any drums of waste or paint sludge identified during the removal of this material will be characterized and disposed of off-site at an appropriately permitted facility. Furthermore, the potential segregation of non-hazardous soil from the contaminated fill will be considered during the design of this remedy. If the segregation of the clean soil from the fill is determined to be practical and cost effective, the segregated soil could then be used as backfill for the Peters Mine Pit. Prior to placement of a soil cover over the Peters Mine Pit Area, the pit will be dewatered and the fill material compacted. Soil testing, such as geotechnical, agronomic, chemical and compaction testing will also be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. Furthermore, water generated during the dewatering operations will be sampled, treated as necessary, and discharged at the Site.

The need for a passive gas management system would also be evaluated during design of this remedy.

As noted above, restoration of the Peters Mine Pit Area will also include vegetation with native trees endemic to the Ringwood State Park. The use of a thick, permeable soil cap will permit the establishment of trees, including those with deep tap roots. Restoration of the Peters Mine Pit Area in this manner will allow this area to return to a state similar to that of surrounding areas of the Ringwood State Park and allow for recreational use of this area.

The selected remedy also provides for the monitoring of groundwater quality in the Peters Mine Pit Area until long-term groundwater monitoring is addressed pursuant to the groundwater remedy for the OU3 ROD. For costing purposes, quarterly groundwater monitoring for a period of five years is assumed as a component of the selected remedy. However, as the program is implemented, EPA anticipates that the sampling frequency or number of wells sampled will be revised based on review of the groundwater analytical data.

The environmental benefits of the selected remedy may be enhanced by consideration of technologies and practices during the design of the remedy that are sustainable in accordance with EPA Region 2's Clean and Green policy. This will include consideration of green remediation technologies and practices.

Summary of the Rationale for the Selected Remedy

The selection of a remedy for a Superfund site is accomplished through evaluation of each of the developed remedial alternatives against the above-referenced nine criteria, as specified in the NCP. Based upon an evaluation of the results of Site investigations, input from the NRRB, the detailed analysis of the various remedial alternatives, and public comments, EPA has determined that Alternative 6A satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the nine evaluation criteria, set forth in 40 CFR §300.430(e)(9). The selected remedy is expected to be protective of human health and the environment, once implemented, and will comply with ARARs. Potential risks will be addressed through the removal of an estimated 22,700 tons of impacted fill, and the installation of a thick permeable soil cap over the remaining fill material. It is likely that the contaminated fill contains some paint sludge. While Alternatives 3, 4A, 4B and 4C would also be protective of human health and the environment and be less costly than Alternative 6A, the selected remedy would provide an extra degree of protection by permanently removing from the Site shallow fill materials and wastes that would present the greatest potential for exposure to human and ecological receptors. The removal of this fill material will also result in Alternative 6A providing for a greater reduction in the volume of contaminated fill at the Peters Mine Pit than Alternatives 3, 4A, 4B and 4C, which would provide no reduction in the volume of contaminants. Given that most of the Peters Mine Pit Area is in the Ringwood State Park, removal of shallow fill under Alternative 6A will allow for the installation of a very thick soil cap, thereby allowing for the establishment of trees and allow this area to return to a state similar to that of the surrounding area of the Ringwood State Park. Therefore, implementation of Alternative 6A will allow for the recreational use of the Peters Mine Pit Area by Ringwood State Park visitors. The installation of this soil cap will also greatly reduce the likelihood of exposure

to contaminated fill remaining in the Peters Mine Pit Area.

EPA has determined that Alternative 6A is preferable to Alternative 5 due to concerns regarding the implementability of Alternative 5. The heterogeneous nature of the fill material within the Peters Mine Pit, which may include concrete structures and metal debris, may impede effective stabilization of the impacted fill material. Furthermore, treatability testing would need to be conducted to determine whether the admixture could effectively stabilize organic constituents in the fill. The stabilization of the fill, followed by installation of a limited soil cap could also limit the reuse of this area by Ringwood State Park visitors. It should also be noted that Alternative 6A can be implemented in a more cost-effective manner than Alternative 5.

While Alternative 6A is readily implementable, implementation of Alternative 6B would be challenging as it would require specialized equipment and more extensive excavation work to install a barrier wall into the bedrock. The installation of an impermeable liner as part of Alternative 6B would also limit the vegetation that could be established on the cap, as deep tree roots could puncture the liner. Therefore, this area would not be restored to a state similar to that of the surrounding area of the Ringwood State Park, which could limit the use of this area by Ringwood State Park visitors.

While Alternative 7 would provide for a greater reduction in the volume of contaminated fill than Alternative 6A, it would also have the greatest impacts on workers and the community during implementation. The extensive excavation, loading and off-site transportation of contaminated fill associated with Alternative 7 would present the greatest potential for community and worker exposure to contaminated material. It is estimated that 28,700 truck trips through the Ringwood community would be required to transport all of the excavated material off site as part of Alternative 7, with a commensurate number of truck trips to deliver clean fill. In addition, the depth of excavation required to remove all of the fill from the Peters Mine Pit would require specialized equipment, and would make Alternative 7 substantially more difficult to implement than Alternative 6A. It should also be noted that Alternative 6A can be implemented in a more cost-effective manner than Alternative 7.

Alternative 1 was not selected as it is not protective of human health and the environment. In addition, while Alternative 2 would provide some protection through implementation of institutional and engineering controls, the potential for exposure to impacted fill materials would remain.

Summary of the Estimated Cost of the Selected Remedy

The estimated capital, O&M and present worth costs for the selected remedy are detailed in the FS Report for the Peters Mine Pit Area. The cost estimates, which are based upon estimates developed for similar projects, engineering judgment and construction bids, are order of magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual cost for implementation of the remedy. The estimated capital, O&M and total present worth costs, as well as construction time are detailed below and in Appendix II, Table 5a:

Total Capital Cost: $9,456,600

Present Worth of O&M Cost:	$1,463,600
Total Present Worth Cost:	$10,920,200
Construction Duration:	8-9 months

Expected Outcomes of the Selected Remedy

The selected remedy, Alternative 6A, addresses the potential for exposure to contaminated fill material located in the Peters Mine Pit Area of the Site. Potential risks to humans and ecological receptors due to direct contact and ingestion of contaminants in the fill material will be mitigated through the installation of a thick permeable soil cap over this area of the Site. The risk of exposure to these materials will be further reduced through the removal of contaminated fill material located above the water table, which presents the greatest risk of exposure to humans and ecological receptors. The installation of a soil cap will also result in positive drainage away from the Peters Mine Pit, which is expected to reduce the amount of precipitation that percolates through the fill material, thereby reducing the potential for contaminants to leach from the fill to groundwater. Therefore, EPA expects that the selected remedy for the Peters Mine Pit Area will be consistent with any remedy selected for OU3 (groundwater) of the Site.

The Peters Mine Pit Area is currently located in the Ringwood State Park, which is used for recreational purposes. The installation of a thick soil cap over the Peters Mine Pit will allow for this area to be restored with vegetation, including trees, that is naturally present in the Ringwood State Park. Restoration of the Peters Mine Pit Area in this manner will allow this area to return to a state similar to that of the surrounding areas of the Ringwood State Park, and allow for recreational use of this area. Institutional controls, such as Deed Notices, will be implemented in the Peters Mine Pit Area to prevent uses other than for conservation land/recreational activities.

Long-term monitoring and maintenance of the permeable cap will be conducted to ensure the integrity of the cap and the protectiveness of this remedy. Any identified deficiencies in the cap will be addressed in an expeditious fashion per the requirements of an O&M plan, to be developed to ensure the continued protectiveness of the selected remedy.

Cannon Mine Pit Area

Based upon an evaluation of the results of Site investigations, input from the NRRB, the detailed analysis of the various remedial alternatives, and public comments, EPA has selected Alternative 3A (Permeable Engineered Cap of Cannon Mine Pit Area) as the remedy for the Cannon Mine Pit Area of the Site. This alternative includes the following components:

- Consolidation of shallow fill materials located around the Cannon Mine Pit into the pit;
- Placement and compaction of clean fill material in the Cannon Mine Pit, as necessary to raise the grade to promote drainage away from the pit;
- Excavation and off-site disposal of any drums of waste that may be encountered during consolidation and grading of fill material;

- Installation of a permeable engineered soil cap, consisting of a geotextile fabric and a minimum of 18 inches of clean soil and six inches of topsoil, over the Cannon Mine Pit;

- Restoration of the Cannon Mine Pit Area with vegetation in order to stabilize the surface of the soil cap;

- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;

- Implementation of institutional controls, such as deed notices, to protect the integrity of the permeable cap;

- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and

- Monitoring of groundwater quality in the Canon Mine Pit Area until a groundwater remedy is selected for the Site.

As part of the selected remedy, shallow fill materials, which are present to an approximate depth of five feet (estimated to be less than 1,900 cubic yards) around the Cannon Mine Pit will be removed and placed within the pit. The fill material contained within the pit will then be compacted using construction equipment. Soil testing, such as geotechnical, agronomic, chemical and compaction testing, will be conducted to verify that the base for the soil cap achieves design specifications prior to placing the cover. Furthermore, the need for a passive gas management system would be evaluated during design of this remedy.

Due to the discovery of drums of waste within the pit during performance of the RI, the possibility exists that additional drums of waste will be encountered during preparation of the pit for installation of the permeable cap. Any drums of waste encountered during implementation of the selected remedy would be excavated, characterized and disposed of off Site at an appropriately permitted disposal facility.

The selected remedy also provides for the performance of groundwater monitoring in the Cannon Mine Pit Area to ensure that the fill materials continue to have a minimal impact on groundwater quality until long-term groundwater monitoring is addressed pursuant to the OU3 ROD. For costing purposes, it is assumed that annual groundwater monitoring will be performed for a period of five years. However, as the program is implemented the sampling frequency or number of wells sampled may be revised based on review of the groundwater analytical data.

The environmental benefits of the selected remedy may be enhanced by consideration of technologies and practices during the design of the remedy that are sustainable in accordance with EPA Region 2's Clean and Green policy. This will include consideration of green remediation technologies and practices.

Summary of the Rationale for the Selected Remedy

Based upon an evaluation of the results of Site investigations, input from the NRRB, the detailed analysis of the various remedial alternatives, and public comments, EPA has determined that Alternative 3A satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the nine evaluation criteria, set forth in 40 CFR §300.430(e)(9). The selected remedy is expected to be protective of human health and the environment, once implemented, and will comply with ARARs. Potential risks will be addressed through the installation of a permeable soil cap over the fill material in the Cannon Mine Pit Area of the Site.

While Alternatives 3A and 6 both provide for the installation of a permeable cover over the Cannon Mine Pit Area and are expected to provide the same degree of protection, Alternative 6 is anticipated to have greater impact on the community during the construction of the remedy, due to the need to transport mine tailings from the OCDA to the Cannon Mine Pit. EPA also believes that Alternatives 3A and 3B would provide for a similar degree of protection, as both would provide for the installation of a cover which would minimize the potential for contact with the fill material. However, Alternative 3A can provide as much protection to human and ecological receptors as Alternatives 3B and 6, but in a more cost-effective manner.

EPA has determined that Alternative 3A is preferable to Alternative 4 due to concerns regarding the implementability and short-term impacts of Alternative 4. The heterogeneous nature of the fill material within the Cannon Mine Pit, which may include concrete and metal debris, may impede effective stabilization of the impacted fill material. Furthermore, treatability testing would need to be conducted to determine whether the admixture could effectively stabilize organic constituents in the fill. In addition, the potential would exist for workers or the community to be exposed to contaminants during implementation of Alternative 4, due to the need to mix stabilizing agents into the fill and the potential for dust generation.

While Alternative 5 would provide for a reduction in the volume of contaminated fill, it would also have the greatest impacts on workers and the community during implementation. The extensive excavation, loading and off-site transportation of contaminated fill associated with Alternative 5 would present the greatest potential for community and worker exposure to contaminated material. However, unlike the fill in the Peters Mine Pit and O'Connor Disposal Areas, paint sludge was not detected in fill in the Cannon Mine Pit Area during performance of the RI. It is estimated that more than 7,800 truck trips through the Ringwood community would be required to transport all of the impacted fill off site as part of Alternative 5. It should also be noted that Alternative 3A can be implemented in a more cost-effective manner than Alternative 5. Therefore, EPA has determined that Alternative 3A is preferable to Alternative 5.

Alternative 1 was not selected as it is not protective of human health and the environment. In addition, while Alternative 2 would provide some protection through implementation of institutional and engineering controls, the potential for exposure to impacted fill materials would remain.

Summary of the Estimated Cost of the Selected Remedy

The estimated capital, O&M and present worth costs for the selected remedy are detailed in the

FS Report for the Cannon Mine Pit Area. The cost estimates, which are based upon estimates developed for similar projects, engineering judgment and construction bids, are order of magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual cost for implementation of the remedy. The estimated capital, O&M and total present worth costs, as well as construction time are detailed below:

Total Capital Cost	$974,600
Present Worth of O&M Costs	$374,900
Total Present Net Worth	$1,349,500
Construction Duration	5-6 months

Expected Outcomes of the Selected Remedy

The selected remedy, Alternative 3A, addresses the potential for exposure to contaminated fill material located in the Cannon Mine Pit Area of the Site. Potential risks to humans and ecological receptors due to direct contact and ingestion of contaminants in the fill material will be mitigated through consolidation of fill into the Cannon Mine Pit and installation of a permeable soil cap over this area of the Site. The installation of a soil cap will also result in positive drainage away from the Cannon Mine Pit, which is expected to reduce the amount of precipitation that percolates through the fill material, thereby reducing the potential for contaminants to leach from the fill to groundwater. Therefore, EPA expects that the selected remedy will be consistent with any remedy selected for OU3 (groundwater) of the Site. The installation of a soil cap over the impacted fill also minimizes the potential for runoff of contaminated fill to the Mine Brook.

The Cannon Mine Pit Area is currently undeveloped but portions of this area are zoned for residential or industrial use. Therefore, institutional controls, such as Deed Notices, will be implemented in the Cannon Mine Pit Area as part of the selected remedy to prevent future uses that could impact the integrity of the cap. Engineering controls, such as installation of a fence, will also be implemented to help protect the cap from damage.

Long-term monitoring and maintenance of the permeable cap will be conducted to ensure the integrity of the cap and the protectiveness of this remedy. Any identified deficiencies in the cap will be addressed in an expeditious fashion per the requirements of an O&M plan, to be developed to ensure the continued protectiveness of the selected remedy.

O'Connor Disposal Area

Based upon an evaluation of the results of Site investigations, input from the NRRB, the detailed analysis of the various remedial alternatives, and public comments, EPA has selected Alternative 5A (Removal of Fill for Off-Site Disposal with On-Site Reuse of Mine Tailings) as the remedy for the OCDA of the Site. This alternative includes the following components:

- Excavation of all soil/fill material in the OCDA down to the top of the underlying mine tailings with disposal and/or recycling of all of the excavated material at off-site permitted disposal facilities. Debris-free and non-hazardous mine tailings underlying the

fill material may be used as fill material for the Peters Mine Pit;

- Placement of at least six inches of topsoil throughout the excavated area to enable revegetation of the OCDA;

- Restoration of any wetlands in the OCDA that are disturbed during implementation of the remedy, in coordination with the NJDEP's Land Use Program;

- Monitoring of groundwater quality in the OCDA until a groundwater remedy is selected for the Site.

The selected remedy will provide for the excavation and off-site disposal of approximately 71,000 cubic yards of fill material from the OCDA. In addition, a portion of the approximately 112,700 cubic yards of debris-free mine tailings located below this fill material could be excavated from the OCDA and used as fill in the Peters Mine Pit Area. Undisturbed mine tailings at the base of this area which are not used as fill for the Peters Mine Pit would remain in place. Due to the depth to groundwater in the OCDA and the area's proximity to the Park Brook, dewatering of groundwater and/or diversion of a portion of the Park Brook may be required to remove fill in portions of this area.

Following the excavation and disposition of fill and tailings, six inches of topsoil would be placed throughout the excavated area to enable revegetation of the OCDA. Restoration activities would focus on restoring the OCDA to a pre-disposal condition. Because there are wetlands that would be disturbed during implementation of this remedy, these wetlands would be restored within the OCDA. The restoration of these wetlands will be coordinated with NJDEP's Land Use Program.

In addition, the selected remedy also provides for groundwater monitoring in the OCDA until long-term groundwater monitoring is addressed pursuant to the OU 3 ROD. For costing purposes, it is assumed that annual groundwater monitoring of a subset of existing wells surrounding the OCDA will be performed for a period of five years. However, as the program is implemented the sampling frequency or number of wells sampled could be revised based on review of the groundwater analytical data.

The environmental benefits of the selected remedy may be enhanced by consideration of technologies and practices during the design of the remedy that are sustainable in accordance with EPA Region 2's Clean and Green policy. This will include consideration of green remediation technologies and practices.

Summary of the Rationale for the Selected Remedy

Based upon an evaluation of the results of Site investigations, input from the NRRB, the detailed analysis of the various remedial alternatives, and public comments, EPA has determined that Alternative 5A satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the nine evaluation criteria, set forth in 40 CFR §300.430(e)(9). The selected remedy is expected to be

protective of human health and the environment, once implemented, and will comply with ARARs. Potential risks will be addressed through the excavation and off-site disposal and/or recycling of all of the impacted fill material at appropriately permitted facilities.

While EPA believes that Alternatives 3, 4A and 4B, which provide for the installation of an engineered cap over the OCDA, can be implemented in a manner that would provide for the protection of human health and the environment, EPA anticipates that extensive maintenance activities would be required to ensure that these alternatives remain protective. While access to the OCDA would be restricted under all of these alternatives through the use of engineering controls, such as a fence, EPA believes and past evidence indicates, that it is highly likely that unauthorized access to this area would continue to occur. All-terrain vehicles (ATVs) are routinely used in the surrounding area, and fencing currently installed at the Site has not proven effective in restricting ATV traffic from investigation areas. Therefore, EPA believes that the likely use of ATVs across the capped area would harm the cap, requiring repeated maintenance efforts in perpetuity.

EPA also notes that in the years since disposal of wastes on this portion of the Site ended, this area has become wooded. Until sampling activities were recently carried out in furtherance of the RI, this portion of the Site looked much like, and was used by the local community in the same manner as, the immediately adjacent Ringwood State Park. Members of the local community have long been accustomed to enter this area and have used it for recreation and, among other purposes, for game hunting and gathering plants that have cultural and traditional significance and nutritional value. Alternatives 3, 4A and 4B would allow wastes to remain on this portion of the Site, and include engineering and institutional controls which would thus inhibit or restrict use by the local community for these culturally and traditionally significant activities.

Alternative 1 was not selected as it simply serves as a baseline for comparison with other alternatives and is not protective of human health and the environment. No action would be taken under this alternative to restrict exposure to contaminated fill in the OCDA. In addition, while Alternative 2 may provide some protection through implementation of institutional and engineering controls, the potential for exposure to impacted fill materials would remain.

Therefore, EPA has selected Alternative 5A as the remedy for the OCDA because it is expected to achieve substantial and long-term risk reduction through the permanent removal of contaminated fill from the Site, and will not require extensive maintenance activities to remain protective. Furthermore, unlike most of the other alternatives evaluated, this alternative would allow the portion of the Site that is most readily accessible to the residents to be used without restriction. Removal of the contaminated fill will allow the community to continue to hunt game and gather plants according to their cultural and traditional practices without any inhibitions or restrictions that would be present if a cap or cover were selected.

Summary of the Estimated Cost of the Selected Remedy

The estimated capital, O&M and present worth costs for the selected remedy are detailed in the FS Report for the OCDA. The cost estimates, which are based upon estimates developed for

similar projects, engineering judgment and construction bids, are order of magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual cost for implementation of the remedy. The estimated capital, O&M and total present worth costs, as well as construction time are detailed below:

Total Capital Cost	$32,437,200
Present Worth of O&M Costs	$168,700
Total Present Net Worth	$32,605,900
Construction Duration	23-24 months

Expected Outcomes of the Selected Remedy

The selected remedy, Alternative 5A, addresses the potential for exposure to contaminated fill material located in the OCDA of the Site. Potential risks to humans and ecological receptors due to direct contact and ingestion of contaminants in the fill material will be eliminated through the excavation and off-site disposal and/or recycling of all of the contaminated fill in the OCDA. The removal of all contaminated fill material will also remove all contaminants which could potentially leach to groundwater. Therefore, EPA expects that the selected remedy will be consistent with any remedy selected for OU3 (groundwater) of the Site. The removal of the fill material also eliminates the potential for runoff of contaminated fill to the Park Brook.

EPA anticipates that implementation of the selected remedy will allow the OCDA to be restored to pre-disposal conditions. Therefore, the portion of the Site that is most readily accessible to the residents will be accessible for use without restriction. Removal of the contaminated fill will allow the community to continue to hunt game and gather plants in this area of the Site according to their cultural and traditional practices.

Contingency Remedy

The Borough of Ringwood, which owns the land which comprises the OCDA, has informed EPA that it wishes to construct a new Borough recycling center in the OCDA and that it has taken steps towards achieving that goal. The Borough has indicated that Alternative 4A, Site Grading and Permeable Engineered Cap, would be the alternative that is most compatible with this intended use. The Borough has also noted that the capping called for in Alternative 4A would create a level area near the center of the OCDA, facilitating construction of the proposed recycling facility. The Borough has indicated that the new recycling facility would replace the existing recycling facility and that the existing recycling facility property would be converted to greenspace for use by the surrounding community.

If a portion of the OCDA were to be reused as the Borough's recycling center, many of EPA's concerns that inform selection of Alternative 5A would be addressed with respect to that reused portion. Among the primary reasons for EPA's selection of Alternative 5A are concerns regarding the potential for unauthorized access to the area and associated damage to the cap which may result if a containment alternative was selected. However, under the Borough's recent proposal, the portion of the OCDA that would be used for the recycling facility would be capped with asphalt, which would mitigate concerns regarding damage to the cap. Furthermore,

the routine presence of Borough employees at the recycling center would discourage unauthorized access to this property. The Borough has communicated its view that the existing recycling facility property would be a better greenspace asset than the sloped property that would remain at the OCDA if Alternative 5A were to be implemented.

Consideration of the future use of a site is an integral component of the remedy selection process. While it is not EPA's role to specify how a municipality or other property owner may reuse a remediated site, EPA endeavors to work with communities and property owners to ensure that implemented remedies do not create barriers for safe, viable reuse of site properties. If the property is reused as proposed by the Borough, EPA believes that, with respect to the portion of the OCDA on which the recycling facility would be located, Alternative 4A would best satisfy the nine evaluation criteria and EPA's objective to advance environmental protection while facilitating reuse of sites as valuable community assets. Therefore, EPA has concluded that Alternative 4A should be the contingency remedy for the OCDA. If actions taken by the Borough allow for implementation of the contingency remedy, EPA will appropriately document the change from the selected remedy to the contingency remedy. EPA will select the contingency remedy, Alternative 4A, if the following occurs:

(A) The Borough provides EPA with the following within six months of the date of this ROD: (1) detailed engineering plans for the new recycling center; (2) financial assurance(s) indicating that sufficient funds will be available for construction of the recycling center; and (3) assurances and supporting documentation indicating that the construction of the contingency remedy, including the recycling center, can and will be completed within either a shorter or, at least within a comparable timeframe than it would take to implement the selected remedy, described above; and

(B) EPA determines that the information and assurance(s) that the Borough has submitted to EPA, as described above, are sufficient to allow the contingency remedy to be implemented.

The contingency remedy, Alternative 4A, includes the following components:

- Consolidation of fill from the fringe areas of the OCDA to the center of this area to provide level land which would permit reuse of this area;

- Installation of a minimum two-foot thick engineered permeable soil cap over the consolidated fill materials, which will consist of a geotextile fabric, 18 inches of clean soil and six inches of top soil;

- Placement of six inches of clean fill in excavated areas beyond the engineered cap where soil/fill was removed for consolidation under the cap to ensure proper drainage and a suitable substrate for planting;

- Revegetation of the engineered soil cap and the surrounding fill areas;

- Restoration of wetlands in the OCDA which were disturbed during implementation of the selected remedy, in coordination with the NJDEP's Land Use Program;

- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;

- Implementation of institutional control(s), such as deed notice(s), to maintain the integrity of the cap;

- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and

- Monitoring of groundwater quality in the OCDA until a groundwater remedy is selected for the Site.

Under this alternative, fill from the fringe areas of the OCDA would be consolidated to the center of this area to minimize the size of the required cap and to permit the reuse of this area. After consolidation, the fill materials would be compacted and a two-foot thick soil cap would be installed over the fill materials. The excavated areas beyond the engineered cap where soil/fill would be removed for consolidation under the cap would be backfilled with six inches of clean fill and rough graded to ensure proper drainage prior to revegetation. EPA anticipates that the cleaned up fringe areas would encompass approximately four acres, which would be restored to pre-disposal conditions. The capped area would encompass approximately seven acres of the OCDA. Any materials encountered in the fill that is not suitable for use as sub-grade material under the cap would be segregated and transported for off-site disposal. Furthermore, the need for a passive gas management system would be evaluated during design of this remedy.

In addition, the contingency remedy also provides for groundwater monitoring in the OCDA until long-term groundwater monitoring is addressed pursuant to the OU3 ROD. For costing purposes, it is assumed that annual groundwater monitoring of a subset of existing wells surrounding the OCDA will be performed for a period of five years. However, as the program is implemented the sampling frequency or number of wells sampled could be revised based on review of the groundwater analytical data. The installation of a soil cap and the asphalt/concrete surface associated with the recycling center will result in positive drainage away from the OCDA, which is expected to reduce the amount of precipitation that percolates through the fill material, thereby reducing the potential for contaminants to leach from the fill to groundwater. Therefore, EPA expects that the contingency remedy will be consistent with any remedy selected for OU3 (groundwater) of the Site. The installation of a cap over the impacted fill also minimizes the potential for runoff of contaminated fill to the Park Brook.

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).

Protection of Human Health and the Environment

The selected remedy for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas will be protective of human health and the environment, once implemented. The selected remedy for the Peters Mine Pit Area, Alternative 6A, will prevent direct contact and ingestion risks to humans and ecological receptors associated with contaminated fill by containing this fill material under a permeable soil cap. The thick soil cap will also prevent the possible uptake of contaminants by plants. Further risk reduction will be realized through the excavation and off-site disposal and/or recycling of contaminated fill located above the water table, that humans and ecological receptors have the greatest chance of being exposed to.

The selected remedy for the Cannon Mine Pit Area, Alternative 3A, will prevent direct contact and ingestion risks to humans and ecological receptors associated with contaminated fill by containing this fill material under a permeable soil cap. In addition, institutional and engineering controls, such as a Deed Notice and installation of a fence, will be implemented to help ensure the integrity of the cap so that the remedy remains protective in the future.

The selected remedy for the OCDA, Alternative 5A, will prevent human and ecological receptor exposure to the contaminated fill material by permanently removing the fill material to an appropriately permitted off-site disposal/recycling facility. The extensive excavation and off-site transportation of fill material associated with this remedy has the potential for significant impacts on the community and workers during implementation of the remedy. However, the impacts associated with these activities will be mitigated through the development and implementation of transportation control plans, air monitoring and dust mitigation control plans.

The selected remedies for the Peters Mine Pit Area, Cannon Mine Pit Area and the OCDA will reduce the potential for human exposure to Site-related lead by either removing contaminated fill material from the Site or by containing this fill material under an engineered cap. These remedies are also expected to mitigate the exposure of biota to contaminated fill material and any associated uptake of Site-related lead.

Compliance with 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. 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.

The selected remedies for the Peters Mine Pit and Cannon Mine Pit Areas will comply with New Jersey's Residential Direct Contact Soil Remediation Standards (RDCSRSs) by containing fill materials which exceed these standards under an engineered cap. Furthermore, the selected remedy for the OCDA will comply with New Jersey's RDCSRSs through the permanent removal and off-site disposal of fill material that exceeds these standards. EPA expects that these remedies, once implemented, will comply with all ARARs. A complete list of the ARARs, and TBCs associated with the selected remedies are presented in Tables 2, 3 and 4.

Cost Effectiveness

EPA has determined that the Selected Remedies for the Peters Mine Pit (PMP), Cannon Mine Pit and OCDA are cost-effective and represent reasonable values for the money to be spent. In making this determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (40 CFR §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 of a remedy. The relationship of the overall effectiveness of the selected remedy for each of these areas was determined to be proportional to costs and hence, these alternatives represent a reasonable value for the money to be spent.

The estimated present worth cost of the remedy for the Peters Mine Pit Area is $10,920,200. While other alternatives would contain the contaminated fill material for less cost, the selected remedy will permanently remove from the Site those fill materials which present the greatest risk of exposure to human and ecological receptors. The Selected Remedy is cost-effective as it has been determined to provide the greatest overall protectiveness for its present-worth cost.

Alternatives 3, 4A, 4B and 4C employ engineered caps which are not as effectual in providing long-term effectiveness and permanence as the Selected Remedy because contamination will remain relatively close to the surface under a cap, subject to failure, breach or damage from the elements. Although these capping remedies would provide a level of protection of human health and the environment, the containment of the contamination comes with the need for close and continued management in perpetuity to ensure the cap's integrity. The Selected Remedy provides a higher level of long-term effectiveness and permanence than the other containment alternatives. Removal of contaminated soil and fill from the area surrounding the PMP and replacement with clean fill, ensures a thick layer of clean soil which will support indigenous growth with virtually no risk to recreational users of exposure to contaminants that may exist in the depths of the PMP. EPA believes that the Selected Remedy's additional cost for removal of fill material and any identified paint sludge or drums from the fill area surrounding the Peters

Mine Pit provides protection of human health and the environment and is cost-effective. The additional cost of the Selected Remedy is outweighed by the higher degree of long term effectiveness and permanence it provides over the other alternatives, thereby satisfying the cost effectiveness criteria of Section 121 of CERCLA.

Alternative 5 would permanently stabilize the contaminated fill material, which would serve to minimize the potential for exposure to contaminants. In addition, stabilization of the fill material would also reduce or eliminate the mobility of contaminants in the fill. Alternative 7 would permanently remove all of the contaminated fill material from the Peters Mine Pit Area of the Site. Therefore, Alternatives 5 and 7 are the most effective at achieving long-term effectiveness and permanence at the Site. However, the benefits derived from these two alternatives do not outweigh the substantial additional costs of implementing those remedies over the benefits obtained from the Selected Remedy for PMP.

The estimated present worth cost of the remedy for the Cannon Mine Pit Area is $1,349,500. EPA believes that the selected remedy, Alternative 3A, will provide a similar degree of protection as more costly alternatives, with less short term impacts on the community and workers.

The selected remedy for the OCDA has an estimated present worth cost of $32,605,900. While it is true that less expensive containment alternatives can be implemented in a protective manner, EPA is convinced that the recreational and other uses (both authorized and unauthorized) of the vicinity, make impractical the continued protectiveness of these capping remedies. In the absence of a regular and continued presence on the Site, extensive operation and maintenance (O&M) activities, due to unauthorized ATV traffic, would need to be implemented in perpetuity in order to ensure that these containment alternatives remain protective. Improper O&M would result in failure of protectiveness of a capping remedy. The impacts of O&M to protectiveness at this Site are even more significant since the OCDA is located adjacent to the roadway and easily accessible from nearby residential neighborhoods. OCDA has, in the past, been frequented by hunters, gatherers and ATV recreational riders and EPA has no expectations that future use of the OCDA would change if the area was capped and left without a significant presence on-Site. Containment may be considered suitable in other areas of the Ringwood Mines Superfund Site but at this area of the Site, where risks of failure in protectiveness are very high due to the continued use of the OCDA, such a remedy is not recommended.

Although engineering measures may somewhat limit entry onto the capped area of the OCDA, they cannot completely eliminate the significant risks to protectiveness associated with failures caused by the detrimental impact of recreational use. However, if the Borough of Ringwood were to utilize the OCDA for its recycling facility, the area would be capped with asphalt, which would mitigate concerns regarding damage to a cap. Furthermore, the routine presence of Borough employees at the recycling center would discourage unauthorized access to this property.

The additional cost of the Selected Remedy for the OCDA is outweighed by the higher degree of long term effectiveness and permanence it provides over the other alternatives, thereby satisfying the cost effectiveness criteria of Section 121 of CERCLA.

Utilization of Permanent Solutions and Alternative Treatment Technologies

EPA has determined that the selected remedy utilizes permanent solutions and treatment technologies to the maximum extent that is practicable. The selected remedy for the Peters Mine Pit Area will permanently remove from the Site contaminated fill material located above the water table, as well as any paint sludge or drums of waste which may be discovered during remedy implementation. Furthermore, the selected remedy for the OCDA will permanently remove from the Site all contaminated fill material contained in this area. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA has determined that the selected remedy for the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas provides the best balance of tradeoffs in terms of the balancing criteria, while also considering state and community acceptance.

Preference for Treatment as a Principal Element

The statutory preference for the use of remedies that involve treatment as a principal element is not satisfied by the selected remedy. In-situ stabilization of the contaminated fill material in the Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas is the only treatment technology determined to be potentially viable for treatment of the fill. However, EPA has determined that implementation of this technology is not practicable, due to the depth of disposal and the heterogeneous nature of the fill.

Five-Year Review Requirements

Because the selected remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

Upon review of all comments submitted, EPA has determined that no significant changes to the selected remedy, as presented in the Proposed Plan, are warranted.

EXHIBIT B

STATEMENT OF WORK

REMEDIAL ACTION

STATEMENT OF WORK

OPERABLE UNIT 2

RINGWOOD MINES/LANDFILL SUPERFUND SITE

Ringwood, Passaic County, State of New Jersey

EPA Region 2

TABLE OF CONTENTS

1. INTRODUCTION

1.1 **Purpose of the SOW**. This Statement of Work (SOW) sets forth the procedures and requirements for implementing the Work.

1.2 **Structure of the SOW**. Section 2 (Community Involvement) sets forth EPA's and the Settling Defendants' (SDs') 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 the SDs' reporting obligations. Section 5 (Deliverables) describes the content of the supporting deliverables and the general requirements regarding SDs' 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 the Selected Remedy Section of the ROD as modified by the ESD, and further modified by the Remedial Design approved by EPA, which includes, among other things, provisions for the management of dewatering waters and excavation handling within the Peters Mine Pit Area. The Scope of the Remedy also includes the following requirements:

Peters Mine Pit Area

Obligations of Ford

- Dewatering of the Peters Mine Pit pond with proper disposal of removed water, or use of other water management technologies or methods approved by EPA;
- Excavation of soil and fill material from the fill area surrounding the Peters Mine Pond (within Peters Mine Pit) down to native soil, bedrock, or the water table as defined by the water surface elevation in the pond at the time of construction and prior to initiation of pond water management, whichever is encountered first. If drums of waste or paint sludge are encountered, the excavation would continue until these materials are removed to the extent practicable. Any excavation below the water table will be conducted provided that the area can be isolated and stabilized to support such a removal action, and that the work can be completed in a manner that does not compromise the structural integrity of the mine pit or mine workings, or introduce unsafe geotechnical or worker conditions.
- Segregated non-hazardous soil or fill from this excavation, if suitable, may be reused as fill for the excavated area and/or the Peters Mine Pit. Debris-free and non-hazardous soil and/or mine tailings from the O'Connor Disposal Area may also, at Ford's option, be used as fill for this purpose in lieu of importing clean fill from an off-site source; all other excavated material will be disposed of off-site at an appropriately permitted facility;

- Placement and compaction of a sufficient amount of fill material in the Peters Mine Pit to raise the elevation to a level at least two feet above the average surface water elevation of the removed pond. Debris-free and non-hazardous soil and/or mine tailings from the O'Connor Disposal Area may also be used as fill for this purpose in lieu of importing clean fill from an off-site source;
- Placement and compaction of clean fill, as needed, to fill in and/or level off the excavated area surrounding the Peters Mine Pit;
- Recontour and take other measures, as needed, to prepare the surface of the Peters Mine Pit area to ensure that it provides an adequate base for a geotextile fabric and subsequent cap;
- Installation of a geotextile fabric over the fill materials in the Peters Mine Pit Area. This will be followed by the placement of a sufficient amount of clean fill and six inches of topsoil on top of the fabric to cap the Peters Mine Pit and elevate the center of the cap to a level which is at least three feet above that of the perimeter area and thereby create positive drainage away from the center of the cap onto the perimeter area and then away from this area onto surrounding terrain;
- The cap design will incorporate measures for stormwater and erosion management using appropriate drainage controls designed in accordance with the minimum guidelines provided in the "Standards for Soil Erosion and Sediment Control in New Jersey" and the "New Jersey Stormwater Best Management Practices Manual";
- Restoration of the Peters Mine Pit Area with a variety of trees and other vegetation that are indigenous to the Ringwood area, with the intent of making this area consistent with recreational purposes as part of Ringwood State Park;

Obligations of Ford and the Borough

- Implementation of institutional controls, such as deed notices, to protect the integrity of the permeable cap, to limit use of the capped area for purposes consistent with those permissible in the Ringwood State Park, and to post notice that All Terrain Vehicle ("ATV") or similar recreational vehicle use is not permitted on the permeable cap;
- Implementation of engineering controls, specifically, the placement of boulders to restrict access of all ATVs or other similar recreational vehicle use to the capped area;
- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap in consideration of relevant and applicable components of the New Jersey Solid Waste Regulations, N.J.A.C. 7:26-2A, and the New Jersey Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C, including but not limited to NJDEP's remedial action permit equivalent and biennial certification requirements for the capped area under N.J.A.C. 7:26C-7; and
- Monitoring of groundwater quality in the Peter's Mine Pit Area consistent with the requirements of the OU2 ROD until a groundwater remedy is selected for the Site.

Cannon Mine Pit Area

Obligations of Ford

- Placement and compaction of clean fill material in the Cannon Mine Pit, as necessary to raise the grade to promote drainage away from the pit;

- Excavation and off-site disposal of any drums of waste that may be encountered during consolidation and grading of fill material;
- Installation of a permeable engineered soil cap, consisting of a geotextile fabric and eighteen inches of clean soil and six inches of topsoil, over the Cannon Mine Pit;
- The cap design will incorporate measures for stormwater and erosion management using appropriate drainage controls designed in accordance with the minimum guidelines provided in the "Standards for Soil Erosion and Sediment Control in New Jersey" and the "New Jersey Stormwater Best Management Practices Manual";
- Restoration of the Cannon Mine Pit Area with vegetation in order to stabilize the surface of the soil cap and enhance erosion protection;
- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;

Obligations of Ford and the Borough

- Implementation of institutional controls, such as deed notices, to protect the integrity of the permeable cap for any purposes other than conservation land and to post notice that ATV or similar recreational vehicle use is not permitted on the permeable cap;
- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap in consideration of relevant and applicable components of the New Jersey Solid Waste Regulations, N.J.A.C. 7:26-2A, and the New Jersey Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C, including but not limited to NJDEP's remedial action permit equivalent and biennial certification requirements for the capped area under N.J.A.C. 7:26C-7; and
- Monitoring of groundwater quality annually in the Cannon Mine Pit Area under the current monitoring program until a groundwater remedy is selected for the Site.

O'Connor Disposal Area

Obligations of Ford

- Consolidation of fill from the fringe areas of the O'Connor Disposal Area to within the final limits of the cap;
- Installation of a two-foot thick engineered permeable soil cap over the consolidated fill materials, which will consist of a geotextile fabric, eighteen inches of clean soil and six inches of top soil on areas outside of paved surfaces or twenty-four inches of clean fill (including appropriate fill materials that may be used in conjunction with development of the O'Connor Disposal Area recycling center and which meet the ARARs) on areas beneath paved surfaces;
- Placement of six inches of clean fill in excavated areas beyond the engineered cap where soil/fill was moved for consolidation under the cap to ensure proper drainage and a suitable substrate for planting;
- Revegetation of the engineered soil cap outside the boundary of the paved areas and the surrounding fill areas;
- The cap design will incorporate measures for stormwater and erosion management by the use of appropriate drainage controls designed in accordance with the minimum guidelines

provided in the "Standards for Soil Erosion and Sediment Control in New Jersey" and the "New Jersey Stormwater Best Management Practices Manual"; and

- Restoration of wetlands in the O'Connor Disposal Area disturbed during implementation of the selected remedy in conformity with the March 6, 2018 permit equivalent issued by NJDEP's Land Use Regulation Program.

Obligations of Ford and the Borough

- The construction of the engineered soil cap will be sequenced with the construction of the O'Connor Disposal Area recycling center as managed by the Borough of Ringwood;
- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;
- Implementation of institutional controls, such as deed notices, to maintain the integrity of the cap;
- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap in consideration of relevant and applicable components of the New Jersey Solid Waste Regulations, N.J.A.C. 7:26-2A, and the New Jersey Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C, including without limitation, the NJDEP's remedial action permit equivalent and biennial certification requirements for the capped area under N.J.A.C. 7:26C-7;
- Monitoring of groundwater quality in the OCDA annually under the current monitoring program until a groundwater remedy is selected for the Site; and
- The Borough will cooperate with Ford's efforts to coordinate such work with the NJDEP's Land Use Program and comply with the March 6, 2018 permit equivalent issued by the Land Use Program.

1.4 The terms used in this SOW that are defined in CERCLA, in regulations promulgated under CERCLA, or in the Consent Decree (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 the 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 RI/FS phase, EPA developed a Community Involvement Plan (CIP) for the Site. Pursuant to 40 C.F.R. § 300.435(c), EPA is reviewing an existing draft CIP and determining 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, SDs shall participate in community involvement activities, including participation in (1) the preparation of information regarding the Work for dissemination to the public, with consideration given

to including mass media and/or Internet notification, and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site. SDs' support of EPA's community involvement activities may include providing online access to initial submissions and updates of deliverables to (1) Community Advisory Groups, (2) Technical Assistance Grant recipients and their advisors, (3) Technical Assistance Services for Communities program and (4) other entities to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP SDs' responsibilities for community involvement activities. All community involvement activities conducted by SDs at EPA's request are subject to EPA's oversight. EPA maintains a community information repository at the Ringwood Public Library,which houses one copy of the administrative record. The administrative record, along with other documents in the Site file, are also available online at https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0200663.

(c) **SD's CI Coordinator**. If requested by EPA, the SDs shall, within 15 days, designate and notify EPA of SD's Community Involvement Coordinator (SDs' CI Coordinator). The SDs may hire a contractor for this purpose. The notice must include the name, title, and qualifications of the SDs' CI Coordinator. The SDs' 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 **RA Work Plan**. Ford Motor Company ("Ford") shall submit a RA Work Plan (RAWP), to implement the required remedial action for OU2, for EPA approval that includes:

(a) A proposed RA Construction Schedule that specifies critical path method, including a Gantt chart(s);

(b) An updated health and safety plan that covers activities during the RA; and

(c) Plans for satisfying permitting requirements, including obtaining permits for off-site activity and for satisfying substantive requirements of permits for on-site activity.

3.2 **Independent Quality Assurance Team**. SDs shall notify EPA of the SDs' designated Independent Quality Assurance Team (IQAT). The IQAT will be independent of the Supervising Contractor. Ford may hire a third party for this purpose. The SDs' notice must include the names, titles, contact information, and qualifications of the members of the IQAT. The IQAT will have the responsibility to determine whether Work is of expected quality and conforms to applicable plans and specifications. The IQAT will have the responsibilities as described in ¶ 2.1.3 of the *Guidance on EPA Oversight of*

Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, EPA/540/G-90/001 (Apr. 1990).

3.3 Meetings and Inspections

(a) **Preconstruction Conference**. SDs 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). SDs shall prepare minutes of the conference and shall distribute the minutes to all Parties. NJDEP may also attend this meeting.

(b) **Periodic Meetings**. During the construction portion of the RA (RA Construction), SDs shall meet with EPA, and others as directed or determined by EPA, in person or via conference call, monthly, unless a different frequency is approved, to discuss construction issues. The SDs shall distribute an agenda and list of attendees to all Parties prior to each meeting. The SDs shall prepare minutes of the meetings and shall distribute the minutes to all Parties. The SDs shall also provide written letter reports on a bi-weekly basis summarizing construction issues. NJDEP may also attend these meetings.

(c) **Inspections**

(1) EPA and NJDEP will conduct periodic inspections of (or have an on-site presence during) the Work. At EPA's or NJDEP's request, the Supervising Contractor or other designee shall accompany EPA or NJDEP during inspections.

(2) The SDs shall provide on-site office space for EPA and NJDEP personnel to perform their oversight duties. The minimum office requirements are: a private office with an office desk with chair, a four-drawer file cabinet, a telephone with a private line, access to facsimile and reproduction equipment, wireless internet access, and sanitation facilities.

(3) Upon notification by EPA of any deficiencies in the RA Construction, Ford shall take all necessary steps to correct the deficiencies and/or bring the RA Construction into compliance with the approved Final RD, any approved design changes, and/or the approved RAWP. If applicable, Ford 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, SDs 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 (HASP), 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 SDs are 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, or Section 6 of the New Jersey Spill Compensation and Control Act, N.J.S.A. 58:10-23.11e., SDs shall immediately orally notify the authorized EPA officer, NJDEP's assigned case manager, and the other SD's representative identified in Section XX of the CD.

(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), SDs 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) SDs may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. The SD will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if the SD 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). SDs 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) SDs 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. The SD 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. The SD shall provide the notice after the award of the contract for RA construction and before the Waste Material is shipped.

3.6 Certification of RA Completion

(a) **RA Completion Inspection**. The OU2 RA is "Complete" for purposes of this ¶ 3.6 when it has been fully performed and the Performance Standards have been achieved. Upon SDs' request, EPA may issue separate "Complete" determinations for the Peters Mine Pit Area, Cannon Mine Pit Area, and the O'Connor Disposal Area upon the performance of the RA for that area ("Partial Completion"). SDs shall schedule an inspection for the purpose of obtaining EPA's Certification of RA Completion. The inspection must be attended by SDs and EPA and/or their representatives. NJDEP may also attend this inspection.

(b) **RA Report**. Following the inspection, SDs shall submit a RA Report to EPA requesting EPA's Certification of RA Completion or Partial Completion. The report must: (1) include certifications by a registered professional engineer licensed in the state of New Jersey and by Ford's Project Coordinator that the 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); and (4) be certified in accordance with ¶ 5.5 (Certification).

(c) If EPA concludes, in consultation with NJDEP, that the RA is not Complete, EPA shall so notify the SDs. EPA's notice must include a description of any deficiencies. EPA's notice may include a schedule for addressing such deficiencies or may require the SDs to submit a schedule for EPA approval. SDs shall perform all activities described in the notice in accordance with the schedule.

(d) If EPA concludes, in consultation with NJDEP, based on the initial or any subsequent RA Report requesting Certification of RA Completion or Partial

Completion, that the RA is Complete, EPA shall so certify to the SDs. This certification will constitute the Certification of RA Completion for purposes of the CD, including Section XV of the CD (Covenants by Plaintiff[s]). Certification of RA Completion will not affect the SDs' remaining obligations under the CD.

3.7 Certification of Work Completion

(a) **Work Completion Inspection**. SDs shall schedule an inspection for the purpose of obtaining EPA's Certification of Work Completion. The inspection must be attended by the SDs and EPA and/or their representatives. NJDEP may also attend this inspection.

(b) **Work Completion Report**. Following the inspection, SDs shall submit a report to EPA requesting EPA's Certification of Work Completion. The report must: (1) include certification by a registered professional engineer licensed in the State of New Jersey and by Ford's Project Coordinator that the Work, including all Operation and Maintenance (O&M) activities, is complete; and (2) be certified in accordance with ¶ 5.5 (Certification). SDs' report for O&M activities shall include a certification that there is compliance with the remedial action permit equivalent pursuant to the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C-1.1 et seq. If the RA Report(s) submitted under ¶ 3.6(b) includes all elements required under this ¶ 3.7(b), then the RA Report(s) suffices to satisfy all requirements under this ¶ 3.7(b).

(c) If EPA concludes, in consultation with NJDEP, that the Work is not complete, EPA will so notify the SDs. EPA's notice will include a description of the activities that the SDs must perform to complete the Work. EPA's notice will include specifications and a schedule for such activities or will require the SDs to submit specifications and a schedule for EPA approval. The SDs shall perform all activities described in the notice or in the EPA-approved specifications and schedule.

(d) If EPA concludes, in consultation with NJDEP, based on the initial or any subsequent report requesting Certification of Work Completion, that the Work is complete, EPA shall so certify in writing to the SDs. Issuance of the Certification of Work Completion does not affect the following continuing obligations: (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 and NJDEP's Future Cleanup and Removal Costs under Section X (Payments for Response Costs) of the CD.

4. REPORTING

4.1 **Progress Reports**. Commencing with the first month following approval of the Remedial Design for Operable Unit Two, Ford shall submit progress reports to EPA on a monthly basis, or as otherwise required 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;

(b) A summary of all results of sampling, tests, and all other data received or generated by Ford, if not already included in another report;

(c) A description of all deliverables that Ford submitted to EPA;

(d) A description of all activities relating to RA Construction that are scheduled for the next six weeks;

(e) An updated RA Construction Schedule for OU-2, 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 for OU-2 or other schedules that Ford 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 six weeks.

4.2 **Notice of Progress Report Schedule Changes**. If the schedule for any activity described in the Progress Reports, including activities required to be described under ¶ 4.1(d), changes, Ford shall notify EPA of such change at least seven days before performance of the activity. Such notification does not relieve the SDs of their obligations to comply with the approved schedules pursuant to Section 6, below.

5. DELIVERABLES

5.1 **Applicability**. SDs shall submit deliverables for EPA approval or for EPA comment as specified in the 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 ¶ 85 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. The SDs shall submit all deliverables to EPA and the NJDEP in electronic form unless otherwise directed by EPA. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", the SDs shall also provide EPA with paper copies of such exhibits.

5.4 Technical Specifications

(a) Sampling and monitoring data shall be submitted in standard regional Electronic Data Deliverable (EDD) format which can be found at https://www.epa.gov/superfund/region-2-superfund-electronic-data-submission-documents. Other delivery methods may be allowed by EPA if electronic direct submission presents a significant burden or as technology changes.

(b) Spatial data, including spatially-referenced data and geospatial data, shall 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 shall include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data shall be accompanied by metadata, and such metadata shall 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 the SDs does not, and is not intended to, define the boundaries of the Site.

5.5 **Certification**. All deliverables that require compliance with this ¶ 5.5 must be signed by Ford's Project Coordinator, or other responsible official of the SDs, 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), the SDs shall, within 21 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 the SDs 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) the SDs 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 the SDs of any liability for stipulated penalties under Section XIV (Stipulated Penalties) of the CD.

5.7 Supporting Deliverables. SDs 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 RA Schedule, or any other EPA-approved schedule, as applicable. The SD shall develop the deliverables in accordance with all applicable regulations, guidances, and policies (see Section 8 (References)). The

SD shall update each of these supporting deliverables as necessary or appropriate during the course of the Work, and/or as required by EPA.

(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. SDs 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 should cover RA activities and be updated, as appropriate, 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. 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. SDs 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 the SDs' quality assurance, quality control, and chain of custody procedures for all treatability, design, compliance, and monitoring samples. SDs shall develop the QAPP 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 the SDs in implementing the CD (SDs' Labs);

(2) To ensure that the SDs' Labs analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring;

(3) To ensure that the SDs' 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 the SDs' Labs participate in an EPA-accepted QA/QC program or other program QA/QC acceptable to EPA;

(5) For the SDs to provide EPA with notice at least 28 days prior to any sample collection activity;

(6) For the SDs 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 the SDs, upon request, split samples and/or duplicate samples in connection with EPA's oversight sampling; and

(9) For the SDs to submit to EPA all sampling and tests results and other data in connection with the implementation of the CD.

(e) **Construction Quality Assurance/Quality Control Plan (CQA/QCP)**. The purpose of the Construction Quality Assurance Plan (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 Construction Quality Control Plan (CQCP) is to describe the activities to verify that RA construction has satisfied all plans, specifications, and related requirements, including quality objectives. The CQA/QCP must:

(1) Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP;

(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 CQA/QCP;

(5) Describe industry standards and technical specifications used in implementing the CQA/QCP;

(6) Describe procedures for tracking construction deficiencies from identification through corrective action;

(7) Describe procedures for documenting all CQA/QCP activities; and

(8) Describe procedures for retention of documents and for final storage of documents.

(f) **Transportation and Off-Site Disposal Plan**. The Transportation and Off-Site Disposal Plan (TODP) describes plans to ensure compliance with ¶ 3.5 (Off-Site Shipments). The TODP must include:

(1) Proposed routes for off-site shipment of Waste Material;

(2) Identification of communities affected by shipment of Waste Material; and

(3) Description of plans to minimize impacts on affected communities.

(g) **O&M Plan**. The O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. SDs 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 ROD for OU2;

(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 that 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 failure; and (iv) community notification requirements;

(5) Description of corrective action to be implemented in the event that PS are not achieved, and a schedule for implementing such corrective action; and

(6) A remedial action permit equivalent and biennial certifications for all institutional and/or engineering controls in accordance with N.J.A.C. 7:26C-1 et seq.

(h) **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. SDs shall develop the O&M Manual in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001).

(i) **Institutional Controls Implementation and Assurance Plan**. The Institutional Controls Implementation and Assurance Plan (ICIAP) describes plans to implement, maintain, and enforce the Institutional Controls (ICs) at the Site. SDs 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) Documentation of all 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) Provision of title research, legal descriptions, and survey maps that are prepared according to current American Land Title Association (ALTA) standards.

(j) **Periodic Review Support Plan**. The Periodic Review Support Plan (PRSP) addresses the studies and investigations that the SDs 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"). The SDs 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 guidance.

6. SCHEDULES

6.1 Applicability and Revisions. All deliverables and tasks required under this SOW must be submitted or completed by the SDs by the deadlines or within the time durations listed in the RA Schedule set forth below. EPA's Notice of Authorization to Proceed will not be issued until the CD is lodged with the Court in accordance with Paragraph 90 of the CD. SDs may submit proposed revised RA Schedules for EPA approval. Upon EPA's approval, the revised RA Schedules supersede the RA Schedules set forth below, and any previously-approved RA Schedules.

6.2 RA Schedule

	Description of Deliverable / Task	¶ Ref.	Deadline
1	Award RA contract		60 days after EPA Notice of Authorization to Proceed with RA. The Authorization to Proceed will not be issued until the CD is lodged with the Court in accordance with Paragraph 90 of the CD.
2	RAWP	3.1	120 days after EPA Notice of Authorization to Proceed with RA
3	Designate IQAT	3.2	120 days after EPA Notice of Authorization to Proceed with RA
4	Health and Safety Plan	5.7(a)	120 days after EPA Notice of Authorization to Proceed with RA
5	Emergency Response Plan	5.7(b)	120 days after EPA Notice of Authorization to Proceed with RA
6	Field Sampling Plan	5.7(c)	120 days after EPA Notice of Authorization to Proceed with RA
7	Quality Assurance Project Plan	5.7(d)	120 days after EPA Notice of Authorization to Proceed with RA
8	Construction Quality Assurance/Quality Control Plan	5.7(e)	120 days after EPA Notice of Authorization to Proceed with RA
9	Transportation and Off-Site Disposal Plan	5.7(f)	120 days after EPA Notice of Authorization to Proceed with RA
10	Pre-Construction Conference	3.3(a)	30 days after Approval of RAWP
11	Start of Construction		45 days after Approval of RAWP provided that such timing is permitted by the limitations set forth in the permits obtained for the construction.
12	O&M Plan	5.7(g)	180 days after Approval of RAWP
13	Institutional Controls Implementation and Assurance Plan	5.7(i)	180 days after RA Completion Inspection
14	RA Completion Inspection	3.6(a)	30 days after completion of construction of remedy
15	RA Report	3.6(b)	30 days after RA Completion Inspection
16	Work Completion Report	3.7(b)	30 days after Work Completion Inspection
17	Periodic Review Support Plan	5.7(j)	Two years after Start of RA Construction

7. STATE PARTICIPATION

7.1 **Copies**. SDs shall, at any time they send a deliverable to EPA, send a copy of such deliverable to NJDEP. EPA shall, at any time it sends a notice, authorization, approval, disapproval, or certification to the SDs, send a copy of such document to NJDEP.

7.2 **Review and Comment**. NJDEP 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

(b) Any disapproval of, or Certification of RA Completion under ¶ 3.6 (Certification of RA Completion), and any disapproval of, or Certification of Work Completion under ¶ 3.7 (Certification of Work 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 though 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) Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration, OSWER 9283.1-33 (June 2009).

(bb) Principles for Greener Cleanups (Aug. 2009), available at http://www.epa.gov/oswer/greenercleanups/, and Region 2's Clean and Green Energy Policy, available at https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy.

(cc) USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration), ISM01.2 (Jan. 2010).

(dd) Close Out Procedures for National Priorities List Sites, OSWER 9320.2-22 (May 2011).

(ee) Groundwater Road Map: Recommended Process for Restoring Contaminated Groundwater at Superfund Sites, OSWER 9283.1-34 (July 2011).

(ff) Recommended Evaluation of Institutional Controls: Supplement to the "Comprehensive Five-Year Review Guidance," OSWER 9355.7-18 (Sep. 2011).

(gg) Construction Specifications Institute's MasterFormat 2018, available from the Construction Specifications Institute, https://www.csiresources.org/practice/standards/masterformat.

(hh) Updated Superfund Response and Settlement Approach for Sites Using the Superfund Alternative Approach , OSWER 9200.2-125 (Sep. 2012)

(ii) 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).

(jj) 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).

(kk) EPA's Emergency Responder Health and Safety Manual, OSWER 9285.3-12 (July 2005 and updates), http://www.epaosc.org/_HealthSafetyManual/manual-index.htm

(ll) Broader Application of Remedial Design and Remedial Action Pilot Project Lessons Learned, OSWER 9200.2-129 (Feb. 2013).

(mm) Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions, OSWER 9355.0-129 (Nov. 2013).

(nn) Groundwater Remedy Completion Strategy: Moving Forward with the End in Mind, OSWER 9200.2-144 (May 2014).

8.2 A more complete list may be found on the following EPA Web pages:

Laws, Policy, and Guidance https://www.epa.gov/superfund/superfund-policy-guidance-and-laws

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 the SDs receive notification from EPA of the modification, amendment, or replacement.

EXHIBIT C

SITE MAPS

APPENDIX I - Figures

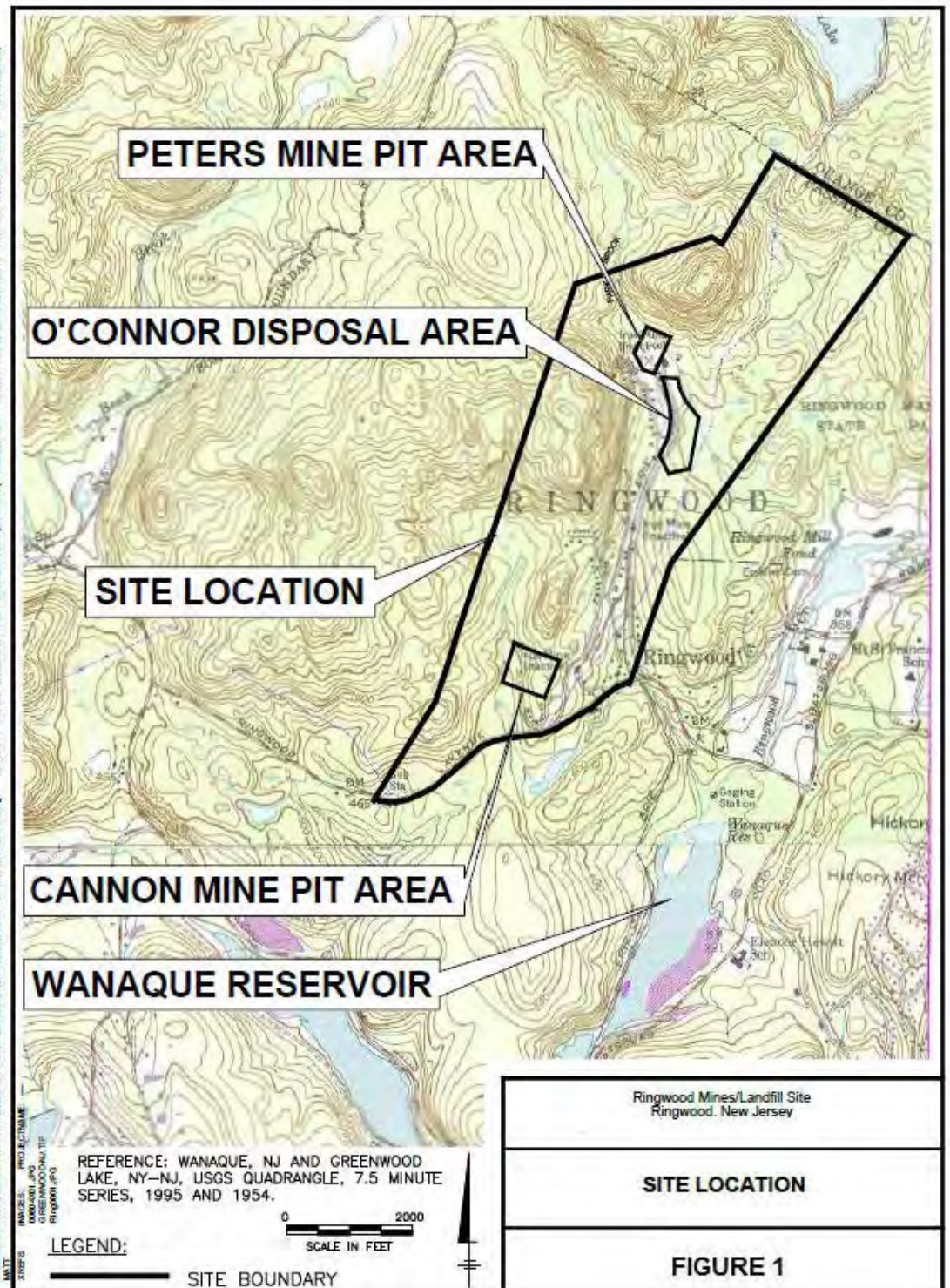
PETERS MINE PIT AREA
O'CONNOR DISPOSAL AREA
SITE LOCATION
CANNON MINE PIT AREA
WANAQUE RESERVOIR
RINGWOOD
Ringwood
REFERENCE: WANAQUE, NJ AND GREENWOOD LAKE, NY–NJ, USGS QUADRANGLE, 7.5 MINUTE SERIES, 1995 AND 1954.
0
2000
SCALE IN FEET
LEGEND:
SITE BOUNDARY
Ringwood Mines/Landfill Site
Ringwood, New Jersey
SITE LOCATION
FIGURE 1

FIGURE 2

R2-0007937

FIGURE 3

R2-0007938

FIGURE 4

R2-0007939

EXHIBIT D

EXPLANATION OF SIGNIFICANT DIFFERENCES

Explanation of Significant Differences

Ringwood Mines/Landfill Superfund Site

Borough of Ringwood
Passaic County, New Jersey

EPA Region 2 April 2015

INTRODUCTION

The purpose of this Explanation of Significant Differences (ESD) is to explain the changes made by the U.S. Environmental Protection Agency (EPA) to the final soil remedy selected for the Ringwood Mines/Landfill Superfund site in 2014.

Under Section 117 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund), as amended, EPA is required to publish an ESD when, after issuance of a Record of Decision (ROD), subsequent enforcement or remedial actions lead to significant, but not fundamental, changes in the selected site remedy. Sections 300.435(c)(2)(i) and 300.825(a)(2) of the National Oil and Hazardous Substances Contingency Plan (NCP) set forth the criteria for issuing an ESD and requiring that an ESD be published if the remedy is modified in a way that differs significantly in either scope, performance, or cost from the remedy selected in the ROD for the site.

This ESD presents the details of EPA's decision to change to a contingency remedy identified in the 2014 ROD. This ESD provides a brief history of the site, describes the original and contingency remedies, and explains how, subsequent to the finalization of the decision document, activities led to the change to the contingency remedy.

EPA's June 2014 Operable Unit Two (OU2) ROD for the Ringwood Mines/Landfill Superfund site selected, among other things, the excavation and off-site disposal of an estimated 71,000 cubic yards of contaminated fill material from the O'Connor Disposal Area (OCDA) (see Figure 1), placement of at least six inches of topsoil throughout the excavated area to enable revegetation of the OCDA, restoration of wetlands that would be disturbed during implementation of this remedy and groundwater monitoring in the OCDA until a groundwater remedy for the site is addressed in the Operable Unit Three (OU3) ROD.

The OU2 ROD also called for implementation of Alternative 4A, Site Grading and Permeable Engineered Cap as a contingency remedy for the OCDA should the Borough of Ringwood advance its plans to use a portion of the OCDA as the Borough's recycling center and provided assurances that the recycling center would be constructed in a timely manner.

This ESD serves to document EPA's decision to implement the contingency remedy for the OCDA.

SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

The site is located in a historic iron mining district in the Borough of Ringwood, Passaic County, New Jersey. The site is approximately 500 acres in size and includes 48 residential properties, an inactive municipal landfill, abandoned mine shafts, filled mine pits, an industrial refuse disposal area, small surficial dumps, a municipal recycling center and a rugged, forested area within the Ringwood State Park. The site is drained by four brooks that

ultimately lead to the Wanaque Reservoir, which supplies drinking water to much of northern New Jersey. The residents in the immediate area of the site receive their water from municipal wells which are unaffected by the site. The land which comprises the site has been utilized for the mining of iron ore almost continuously from the mid-1700s to the early 1900s.

From 1965 until about 1971, the site was used for the disposal of waste materials from Ford Motor Company's Mahwah facility, including cardboard and other packing materials, scrap car parts, paint sludge and scrap and dented drums containing hardened sealing and insulating material. Waste was disposed of in two former iron mining pits (Peter's Mine Pit and the Cannon Mine Pit) as well as a former mine tailing disposal area, now called the OCDA.

The results of a July 1982 Site Inspection conducted by the New Jersey Department of Environmental Protection (NJDEP) identified levels of benzene, ethylbenzene, and xylene in water samples collected from the Peters Mine airshaft, which led to the Site's inclusion on the National Priorities List (NPL) in 1983.

From 1984 through 1988, Ford implemented a Remedial Investigation (RI), completed a Feasibility Study (FS) and removed over 7,000 cubic yards of paint sludge and associated soil from the Site.

In September 1988, EPA issued a ROD which selected long-term monitoring of groundwater and surface water as the remedy for the site. The site was deleted from the NPL in 1994, with the presumption that all paint sludge and drums of hazardous substances had been removed from the site. The deletion was further supported by the determination that groundwater at the site did not pose an unacceptable threat to human health and the environment.

In 1989, 1995 and again in 1998, additional paint sludge was located at the site, prompting several additional removal actions by Ford.

The site was restored to the NPL in September 2006, which was prompted by the discovery of additional significant quantities of paint sludge at the site.

In 2005 and 2010, the Ford Motor Company entered into enforcement agreements with EPA which required the performance of an additional RI and FSs for the site.

The site has been divided into four Areas of Concern (AOCs) as follows:

- **Peters Mine Pit Area** – includes waste, fill material and soil located in and immediately adjacent to the former Peters Mine Pit;
- **Cannon Mine Pit Area** – includes waste, fill material and soil located in and immediately adjacent to the former Cannon Mine Pit;
- **O'Connor Disposal Area** – includes waste, fill material and soil located in and immediately adjacent to the former mine tailing disposal area; and
- **Site-Related Groundwater Contamination** - includes any groundwater contamination resulting from disposal activities at the site.

Based upon the results of an additional RI/FS, in June 2014, the OU2 ROD was signed which called for, among other things, the selection of Alternative 5A for the OCDA. Alternative 5A requires the excavation and off-site disposal of an estimated 71,000 cubic yards of contaminated fill material from the OCDA, placement of at least six inches of topsoil throughout the excavated area to enable revegetation of the OCDA, restoration of wetlands that would be disturbed during implementation of this remedy and groundwater monitoring in the OCDA until a groundwater remedy for the site is addressed in the OU3 ROD.

In September 2013 the Borough of Ringwood, which owns the land that comprises the OCDA, provided plans to EPA for a new Borough recycling center in the OCDA. The Borough indicated that Alternative 4A, Site Grading and Permeable Engineered Cap, would be an alternative that would

be protective and compatible with this intended use. The Borough also noted that the capping called for in Alternative 4A would create a level area near the center of the OCDA, facilitating construction of the proposed recycling facility. The Borough further indicated that the new recycling facility would replace the existing recycling facility and that the existing recycling facility property would be converted to green space for use by the surrounding community.

As discussed in the OU2 ROD, if the land use at the OCDA were to change so that a portion of the OCDA were to be reused as the Borough's recycling center, many of EPA's concerns that informed selection of the selected remedy, Alternative 5A, would be addressed with respect to that reused portion. Among the primary reasons for EPA's selection of the selected remedy are concerns regarding the potential for unauthorized access to the area and associated damage to the cap which may result if a containment alternative was selected. However, under the Borough's proposal, the portion of the OCDA that would be used for the recycling facility would be capped with asphalt, which would mitigate concerns regarding damage to the cap. Furthermore, the routine presence of Borough employees at the recycling center would discourage unauthorized access to this property. The Borough has also communicated its view that the existing recycling facility property would be a better greenspace asset than the sloped property that would remain at the OCDA if the selected remedy were to be implemented.

DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THOSE DIFFERENCES

The OU2 ROD indicates that EPA would select the contingency remedy as the remedy for the OCDA and appropriately document the selection of the contingency remedy, if the following occurred:

(A) The Borough provides EPA with the following within six months of the date of the OU2 ROD: (1) detailed engineering plans for the new recycling center; (2) financial assurance(s) indicating that sufficient funds will be available for construction of the recycling center; and (3) assurances and supporting documentation indicating that the construction of the contingency remedy, including the recycling center, can and will be completed within either a shorter or, at least within a comparable timeframe than it would take to implement the selected remedy, described above; and

(B) EPA determines that the information and assurance(s) that the Borough has submitted to EPA, as described above, are sufficient to allow the contingency remedy to be implemented.

On December 19, 2014, the Borough of Ringwood submitted documentation to EPA to attempt to demonstrate satisfaction of the aforementioned three conditions for selection of the contingency remedy. Documentation submitted by the Borough included, but was not limited to:

(1) Ten drawings prepared by Engineering and Land Planning Associates, Inc., signed on December 12, 2014, which provide detailed engineering plans for the new Borough recycling center;

(2) A signed and notarized document entitled, "Declaration of Financial Assurance Relating to the Municipal Recycling Center at the Ringwood Mines/Landfill Superfund Site," dated December 18, 2014. This document notes that Ford has reserved and committed $1.5 million to complete the construction of a new recycling center at the OCDA, should the contingency remedy be selected by EPA; and

(3) A document entitled, "Ringwood Mines Draft Timeline Comparison for O'Connor Disposal Area Alternatives 4A and 5A," dated December 18, 2014. This document estimates that construction of the selected remedy would take 524 days while construction of the contingency remedy and the new recycling center is estimated at 262 days.

EPA has received and reviewed the materials submitted by the Borough of Ringwood and has determined that the information and assurances that the Borough submitted has satisfied the criteria set forth in the OU2 ROD to allow the contingency

remedy to be implemented. Therefore, EPA has selected the contingency remedy, as specified in the OU2 ROD, as the remedy to be implemented in the OCDA.

The contingency remedy, as specified in the OU2 ROD, includes the following components:

- Consolidation of fill from the fringe areas of the OCDA to the center of this area to provide level land which would permit reuse of this area;
- Installation of a minimum two-foot thick engineered permeable soil cap over the consolidated fill materials, which will consist of a geotextile fabric, 18 inches of clean soil and six inches of top soil;
- Placement of six inches of clean fill in excavated areas beyond the engineered cap where soil/fill was removed for consolidation under the cap to ensure proper drainage and a suitable substrate for planting;
- Revegetation of the engineered soil cap and the surrounding fill areas;
- Restoration of wetlands in the OCDA which were disturbed during implementation of the selected remedy, in coordination with the NJDEP's Land Use Program;
- Implementation of engineering controls, such as the installation of fencing and the placement of boulders, to restrict access to the capped area;
- Implementation of institutional control(s), such as deed notice(s), to maintain the integrity of the cap;
- Long-term monitoring and maintenance of the capped area to ensure the integrity of the permeable cap; and
- Monitoring of groundwater quality in the OCDA until a groundwater remedy is selected for the site.

SUPPORT AGENCY COMMENTS

The NJDEP, after careful consideration of the contingency remedy, supports this ESD, since the contingency remedy is protective of human health and the environment, and because the Borough of Ringwood and Ford Motor Company have committed to restore the current location of the Borough Recycling Center to a natural, green space ecosystem of similar size and composition to the stream buffer zone that the OCDA currently occupies.

FIVE-YEAR REVIEWS

Because the selected remedy, as modified by this ESD, will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

AFFIRMATION OF STATUTORY DETERMINATIONS

The EPA and NJDEP believe that the remedy, as modified, remains protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the modified remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

PUBLIC PARTICIPATION ACTIVITIES

Pursuant to NCP §300.825(a)(2), this ESD will become part of the Administrative Record file for the site. The Administrative Record for the remedial decisions related to the site is available for public review at the following locations:

U.S. EPA Records Center, Region 2
290 Broadway, 18th Floor.
New York, New York 10007-1866
(212) 637-4308
Hours: Monday-Friday - 9 am to 5 p.m., by appointment.

Ringwood Public Library
30 Cannici Drive
Ringwood, New Jersey 07456
Hours: Monday – Thurs. 10am to 9pm, Friday 10am – 5pm, Saturday 10am – 4pm

The EPA and NJDEP are making this ESD available to the public to inform them of the change made to the remedy. Should there be any questions regarding this ESD, please contact:

Joseph Gowers
Remedial Project Manager
New Jersey Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866
(212) 637-4413
gowers.joe@epa.gov

With the publication of this ESD, the public participation requirements set out in §300.4-35(c)(2)(i) of the NCP have been met.


Peters Mine Pit Area
Hope Mountain Road
Park Brook
Copper Mine Pit
Mine Road
O'Connor Disposal Area
Borough Recycling Center
Peters
Legend:
Removal Areas
O'CONNOR DISPOSAL AREA

FIGURE 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: APR 15 2015

SUBJECT: Issuance of an Explanation of Significant Differences to Implement a Contingency Remedy for the Ringwood Mines/Landfill Superfund Site, Ringwood, New Jersey

FROM: Doug Garbarini, Chief
New York Remediation Branch

TO: Walter E. Mugdan, Director
Emergency and Remedial Response Division

Please find attached for your approval an Explanation of Significant Differences (ESD) for the Ringwood Mines/Landfill Site (Site), located in Ringwood, Passaic County, New Jersey. The June 30, 2014 Operable Unit Two Record of Decision (OU2 ROD) specifies criteria that need to be met in order to implement a contingency remedy for the O'Connor Disposal Area (OCDA) of the Site. EPA has reviewed documentation submitted by the Borough of Ringwood and has determined that this information satisfies the criteria specified in the OU2 ROD for implementation of the contingency remedy. Therefore, this ESD has been prepared to implement the contingency remedy for the OCDA.

Please acknowledge your approval of the attached ESD by signing below.

Walter E. Mugdan
Director, Emergency and Remedial Response Division

APRIL 15, 2015
Date