UNITED STATES DISTRICT COURT
DISTRICT OF NEBRASKA

UNITED STATES OF AMERICA

Plaintiff,

Civil Action No. 8:14-cv-422

v.

BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA

Defendant

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I. BACKGROUND

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

B. The United States in its complaint seeks, *inter alia*: (1) reimbursement of costs incurred by EPA and the Department of Justice ("DOJ") for response actions at Operable Unit 5 (OU 5) of the Former Nebraska Ordnance Plant Superfund Site in Mead, Nebraska ("Site"), together with accrued interest; and (2) performance of response actions by the Defendant at OU 5 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 Nebraska (the "State") on September 30, 2013, of negotiations with the potentially responsible party ("PRP") regarding the implementation of the remedial design and remedial action for OU 5 of the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the U. S. Department of Interior on September 30, 2013, of negotiations with the PRP regarding the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

E. The defendant that has entered into this Consent Decree ("Settling Defendant") does not admit any liability to Plaintiff arising out of the transactions or occurrences alleged in the complaint, nor does it acknowledge that the release or threatened release of hazardous substances at or from OU 5 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, by publication in the Federal Register on August 30, 1990, 55 Fed. Reg. 35502.

G. The Site is comprised of four operable units where environmental response activity is occurring. The U.S. Army Corps of Engineers is conducting response actions at OUs 1, 2, and 3 under EPA oversight.

H. In response to a release or a substantial threat of a release of a hazardous substances at or from OU 5 of the Site, Settling Defendant commenced in October 2005, a Remedial Investigation and Feasibility Study ("RI/FS") for OU 5 pursuant to 40 C.F.R. § 300.430.

I. Settling Defendant completed the RI/FS for OU 5 and submitted to EPA a final RI/FS Report on April 8, 2011.

J. 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 June 30, 2011, 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 or Regional delegatee, EPA Region VII, based the selection of the response action.

K. The decision by EPA on the remedial action to be implemented at OU 5 of the Site is embodied in a final Record of Decision ("ROD"), executed on September 27, 2013, on which the State has given its concurrence. 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).

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

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

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

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

II. JURISDICTION

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

III. PARTIES BOUND

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

3. Settling Defendant shall provide a copy of this Consent Decree to each contractor hired to perform the Work required by this Consent Decree and to each person representing Settling Defendant with respect to OU 5 of the Site or the Work, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. Settling Defendant or its contractors shall provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree. Settling Defendant shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the Work in accordance with the terms of this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Defendant within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

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

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

"Consent Decree" shall mean this Consent Decree and all appendices attached hereto (listed in Section XXVII). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

"Day" or "day" shall mean a calendar day unless expressly stated to be a working day. The term "working day" shall mean a day other than a Saturday, Sunday, or federal or state holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or state holiday, the period shall run until the close of business of the next working day.

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

"Effective Date" shall mean the date upon which this Consent Decree is entered by the Court as recorded on the Court docket, or, if the Court instead issues an order approving the Consent Decree, the date such order is recorded on the Court docket.

"Environmental Covenant" shall mean an easement or covenant running with the land that (a) limits land, water, or resource use and/or provides access rights and (b) is created pursuant to common law or statutory law by an instrument that is recorded by the owner in the appropriate land records office.

"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.

"Former Nebraska Ordnance Plant Superfund Site Special Account" shall mean the special account, within the EPA Hazardous Substance Superfund, established for the Site by EPA pursuant to Section 122(b)(3) of CERCLA, 42 U.S.C. § 9622(b)(3), through Administrative Order on Consent for Remedial Investigation/Feasibility Study and Removal Actions, CERCLA Docket No. 07-2005-0053.

"Future Oversight Costs" shall mean that portion of Future Response Costs that EPA incurs in monitoring and supervising Settling Defendant's performance of the Work to determine whether such performance is consistent with the requirements of this Consent Decree, including costs incurred in reviewing plans, reports, and other deliverables submitted pursuant to this Consent Decree, as well as costs incurred in overseeing implementation of the Work; however, Future Oversight Costs do not include, *inter alia*: the costs incurred by the United States pursuant to Paragraph 9 (Notice to Successors-in-Title and Transfers of Real Property), Sections VII (Remedy Review), IX (Access and Institutional Controls), XIV (Emergency Response), and Paragraph 82

(Work Takeover),or the costs incurred by the United States in enforcing the terms of this Consent Decree, including all costs incurred in connection with Dispute Resolution pursuant to Section XVIII (Dispute Resolution) and all litigation costs.

"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 plans, reports, and other deliverables submitted pursuant to this Consent Decree, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Paragraph 9 (Notice to Successors-in-Title and Transfers of Real Property), Sections VII (Remedy Review), IX (Access and Institutional Controls) (including, but not limited to, the cost of attorney time and any monies paid to secure access and/or to secure, implement, monitor, maintain, or enforce Institutional Controls including, but not limited to, the amount of just compensation), XIV (Emergency Response), Paragraph 82 (Work Takeover), and Section XXVIII (Community Involvement). Future Response Costs shall also include all Interim Response Costs.

"Institutional Controls" or "ICs" shall mean an Environmental Covenant and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, and/or resource use to minimize the potential for human exposure to Waste Material at or in connection with OU 5 of the Site; (b) limit land, water, and/or resource use to implement, ensure non-interference with, or ensure the protectiveness of the Remedial Action; and/or (c) provide information intended to modify or guide human behavior at or in connection with OU 5 of the Site.

"Interim Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, incurred and paid by the United States in connection with OU 5 of the Site between April 26, 2011 and the Effective Date.

"Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, 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.

"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.

"NDEQ" shall mean the Nebraska Department of Environmental Quality and any successor departments or agencies of the State.

"Operable Unit 5" or "OU 5" shall mean the surface soils and groundwater underlying the Agricultural Research and Development Center ("ARDC") landfill at the University of Nebraska ("NU"), the Pesticide Rinsate Area, Load Line Disposal Areas 3 and 4, Load Line Disposal Trenches 1 and 2, Igloo Areas 13 and 14, and the Sewage Treatment Plant Area which consists of five discrete burial trench areas identified as Burial Sites A, B, C and D, and an unnamed Burial Site, as depicted on the map, attached as Appendix C.

"Operation and Maintenance" or "O&M" shall mean all activities required to maintain the effectiveness of the Remedial Action as required under the Operation and Maintenance Plan

approved or developed by EPA pursuant to Section VI (Performance of the Work by Settling Defendant) and the SOW and maintenance, monitoring, and enforcement of Institutional Controls.

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

"Parties" shall mean the United States and Settling Defendant.

"Performance Standards" shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action, set forth in the ROD and the SOW and any modified standards established pursuant to this Consent Decree.

"Plaintiff" shall mean the United States.

"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 5 at the Site signed on September 27, 2013, by the Superfund Division Director, EPA Region VII, and all attachments thereto. The ROD is attached as Appendix A.

"Remedial Action" shall mean all activities Settling Defendant is required to perform under the Consent Decree to implement the ROD, in accordance with the SOW, the final Remedial Design and Remedial Action Work Plans, and other plans approved by EPA, including O&M and implementation of Institutional Controls, until the Performance Standards are met, and excluding performance of the Remedial Design, O&M, and the activities required under Section XXIV (Retention of Records).

"Remedial Action Work Plans" shall mean the documents developed pursuant to Paragraphs 12 and 14 and approved by EPA, and any modifications thereto.

"Remedial Design" shall mean those activities to be undertaken by Settling Defendant to develop the final plans and specifications for the Remedial Action at Load Line 1 and the ARDC Landfill pursuant to the Remedial Design Work Plans.

"Remedial Design Work Plans" shall mean the documents developed pursuant to Paragraphs 11 and 13 and approved by EPA, and any modifications thereto.

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

"Settling Defendant" shall mean the Board of Regents of the University of Nebraska and any successor educational institutions.

"Site" shall mean the Former Nebraska Ordnance Plant Superfund Site, encompassing approximately 27 square miles (over 17,000 acres), located in Mead, Saunders County, Nebraska, and depicted generally on the map attached as Appendix C.

"State" shall mean the State of Nebraska.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Design, Remedial Action, and O&M at OU 5 of the Site, as set forth in Appendix B to this Consent Decree and any modifications made in accordance with this Consent Decree.

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

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

"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 Settling Defendant is required to perform under this Consent Decree, except the activities required under Section XXIV (Retention of Records).

V. GENERAL PROVISIONS

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

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

7. Compliance With Applicable Law. All activities undertaken by Settling Defendant pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Settling Defendant must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the ROD and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be deemed to be consistent with the NCP.

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, Settling Defendant shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. Settling Defendant may seek relief under the provisions of Section XVII (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 Paragraph 8.a and required for the Work, provided that it has submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

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

9. Notice to Successors-in-Title and Transfers of Real Property.

a. For any real property owned or controlled by Settling Defendant located at OU 5 of the Site where Institutional Controls are not presently in effect but, as determined by EPA, are needed to implement the remedy selected in the ROD, Settling Defendant shall, within 90 days after the Effective Date, submit to EPA a proposed notice to be filed with the appropriate land records office that provides a description of the real property and provides notice to all successors-in-title that the real property is part of the Site, that EPA has selected a remedy for the Site, and that a potentially responsible party has entered into a Consent Decree requiring implementation of the remedy. The notice also shall describe the land use restrictions set forth in Paragraphs 28.b and 29.a(2) and shall identify the United States District Court in which the Consent Decree was filed, the name and civil action number of this case, and the date the Consent Decree was entered by the Court. Settling Defendant shall record the notice within 30 days after EPA's approval of the notice. Settling Defendant shall provide EPA with a certified copy of the recorded notice within 60 days after recording such notice.

b. Settling Defendant shall, at least 60 days prior to any Transfer of any real property located at the Site, give written notice: (1) to the transferee regarding this Consent Decree and any Institutional Controls regarding the real property; and (2) to EPA and the State regarding the proposed Transfer, including the name and address of the transferee and the date on which the transferee was notified of the Consent Decree and any Institutional Controls.

c. Settling Defendant may Transfer any real property located at the Site only if: (1) any Environmental Covenant required by Paragraph 28.b has been recorded with respect to the real property; or (2) Settling Defendant has obtained an agreement from the transferee, enforceable by Settling Defendant and the United States, to (i) allow access and restrict land/water use, pursuant to Paragraphs 29.a(1) and 29.a(2), (ii) record any Environmental Covenant on the real property, pursuant to Paragraph 29.a(3), and (iii) subordinate its rights to any such Environmental Covenant, pursuant to Paragraph 29.a(3), and EPA has approved the agreement in writing. If, after a Transfer of the real property, the transferee fails to comply with the agreement provided for in this Paragraph 9.c, Settling Defendant shall take all reasonable steps to obtain the transferee's compliance with such agreement. The United States may seek the transferee's compliance with the agreement and/or assist Settling Defendant in obtaining compliance with the agreement. Settling Defendant shall reimburse the United States under Section XV (Payments for Response Costs), for all costs incurred, direct or indirect, by the United States regarding obtaining compliance with such agreement, including, but not limited to, the cost of attorney time.

d. In the event of any Transfer of real property located at the Site, unless the United States otherwise consents in writing, Settling Defendant shall continue to comply with its obligations under the Consent Decree, including, but not limited to, its obligation to provide and/or secure access, to implement, maintain, monitor, and report on Institutional Controls, and to abide by such Institutional Controls.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANT

10. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by Settling Defendant pursuant to Sections VI (Performance of the Work by Settling Defendant), VII (Remedy Review), VIII (Quality Assurance, Sampling, and Data Analysis), IX (Access and Institutional Controls), and XIV (Emergency Response) shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA. Within ten days after the lodging of this Consent Decree, Settling Defendant shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. With respect to any contractor proposed to be Supervising Contractor, Settling Defendant shall demonstrate that the proposed contractor has a quality assurance system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. EPA will issue a notice of disapproval or an authorization to proceed regarding hiring of the proposed contractor. If Settling Defendant proposes to change the Supervising Contractor, Settling Defendant shall give such notice to EPA and must obtain an authorization to proceed from EPA before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree. Settling Defendant shall demonstrate that the proposed replacement contractor has a quality assurance system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA

b. If EPA disapproves a proposed replacement Supervising Contractor, EPA will notify Settling Defendant in writing. Settling Defendant shall submit to EPA a list of contractors, including the qualifications of each contractor, who would be acceptable within 30 days after receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. Settling Defendant may select any contractor from that list that is not disapproved and shall notify EPA of the name of the contractor selected within 21 days after EPA's authorization to proceed.

c. If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents Settling Defendant from meeting one or more deadlines in a plan approved by EPA pursuant to this Consent Decree, Settling Defendant may seek relief under Section XVII (Force Majeure).

11. Remedial Design for Load Line 1 ("LL1")

a. As part of the Remedial Design, Settling Defendant shall perform pre-design work which includes a Pre-Design Investigation ("PDI") Work Plan, PDI and PDI Evaluation Report. Within 90 days of the Effective Date, Settling Defendant shall commence the pre-design work with the submission to EPA and the State of a PDI Work Plan, consistent with Section IV.A.1.b. of the SOW and subject to the review and approval process of Section XI herein. Settling Defendant shall implement the PDI and submit a PDI Evaluation Report as described in Section IV.A.1.c. of the SOW and in accordance with the Schedule of Section VIII of the SOW.

b. Following approval of the PDI Evaluation Report, Settling Defendant shall submit a draft Pilot Study Work Plan, consistent with Section IV.A.2.b. of the SOW. Following approval of the Pilot Study Work Plan, Settling Defendant shall perform a pilot study of in-situ chemical oxidation ("ISCO") as treatment of the 1,4-dioxane. Settling Defendant shall submit to EPA and the State a Pilot Study Evaluation Report when the Pilot Study is concluded. The Pilot Study Evaluation Report shall be subject to the review and approval process of Section XI herein.

c. Within 45 days of approval of the Pilot Study Evaluation Report, Settling Defendant shall submit to EPA and the State, a LL1 Draft Remedial Design Work Plan ("RDWP") that takes into account the results set forth in the approved Pilot Study Evaluation Report and includes, at a minimum, the elements identified in Section IV.B. of the SOW. Upon approval by EPA, the LL1 RDWP shall be incorporated into and enforceable under this Consent Decree as the LL1 Final RDWP.

d. Within 45 days of approval of the LL1 RDWP, Settling Defendant shall submit to EPA and the State a LL1 Draft Remedial Design which includes, at a minimum, the components listed in Section IV.C.1. of the SOW.

e. Within 45 days of receipt of comments on the LL1 Draft Remedial Design, Settling Defendant shall respond to comments on the LL1 Draft Remedial Design and submit to EPA and the State a LL1 Pre-final Remedial Design which shall be a continuation and expansion of the LL1 Draft Remedial Design and include the components listed in Section IV C.2. of the SOW. The LL1 Pre-final Design shall become the LL1 Final Remedial Design upon approval by EPA.

f. In implementing the Pre-Design, Pilot Study and Design, Settling Defendant shall follow a Field Sampling Plan ("FSP"), Health and Safety Plan ("HSP") that conforms to the applicable Occupational Safety and Health Administration ("OSHA") and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120, and Quality Assurance/Quality Control Plan ("QA/QC") which Settling Defendant shall submit in accordance with the Schedule of Section VIII of the SOW. The FSP and QA/QC shall be subject to the review and approval process of Section XI herein.

12. Remedial Action for LL1

a. Settling Defendant shall submit to EPA and the State a LL1 Draft Remedial Action Work Plan ("RAWP") for the performance of the LL1 Remedial Action. The LL1 Draft RAWP shall provide for construction and implementation of the LL1 remedy set forth in the ROD and achievement of the Performance Standards, in accordance with this Consent Decree, the ROD, Section V of the SOW, and the design plans and specifications developed in accordance with the LL1 RDWP as approved by EPA. Upon its approval by EPA, the LL1 RAWP shall become the LL1 Final RAWP and shall be incorporated into and enforceable under this Consent Decree. At the same time as Settling Defendant submits the LL1 RAWP, Settling Defendant shall submit to EPA and the State a Health and Safety Plan for field activities required by the LL1 Remedial Action Work Plan that conforms to the applicable OSHA and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

b. The LL1 RAWP shall include the following: (1) schedule for completion of the LL1 Remedial Action; (2) method for selection of the contractor; (3) groundwater monitoring plan; (4) methods for satisfying permitting requirements; (5) methodology for implementing O&M Plan; (5) and procedures and plans for the decontamination of equipment and the disposal of

contaminated materials. The LL1 RAWP also shall include the methodology for implementing all LL1 Remedial Action tasks identified in the final design submission.

c. Settling Defendant shall implement the activities required under the LL1 Final RAWP until Performance Standards consistent with Section III.B. of the SOW are met and maintained. Settling Defendant shall submit to EPA and the State all reports and other deliverables required under the LL1 Final RAWP in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Unless otherwise directed by EPA, Settling Defendant shall not commence physical Remedial Action activities for LL1 prior to approval of the LL1 RAWP.

13. Remedial Design for ARDC Landfill.

a. Within 180 days of the Effective Date, Settling Defendant shall complete a PDI of the existing landfill cap and within 30 days of the completion PDI, Settling Defendant shall submit a report, which evaluates the cap and describes the work necessary to replace or enhance the cap so that it meets the requirements of Title 132 of the Nebraska Administrative Code, Rules and Regulations Relating to Solid Waste Management ("Title 132"), as described in Section VI of the SOW.

b. Within 45 days of EPA approval of the ARDC Landfill Cap Evaluation Report, Settling Defendant shall submit to EPA and the State, an ARDC Landfill Draft RDWP that takes into account the results set forth in the approved Landfill Cap Evaluation Report and includes, at a minimum, the elements identified in Section VI of the SOW. At the same time that Settling Defendant submits the ARDC Landfill Draft RDWP, Settling Defendant shall also submit to EPA and the State a Health and Safety Plan for the ARDC Landfill that conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

c. Within 45 days of EPA approval of the ARDC Landfill RDWP, Settling Defendant shall submit to EPA and the State a Draft Remedial Design which includes, at a minimum, the components listed in Section VI of the SOW.

d. Within 45 days of EPA approval of the ARDC Landfill Draft Remedial Design, Settling Defendant shall submit to EPA and the State an ARDC Landfill Pre-final Remedial Design which shall be a continuation and expansion of the ARDC Landfill Draft Remedial Design and include the components listed in Section VI of the SOW. The ARDC Landfill Pre-final Design shall become the ARDC Landfill Final Remedial Design upon approval by EPA.

14. Remedial Action for ARDC Landfill.

a. Settling Defendant shall submit to EPA and the State a draft ARDC Landfill RAWP for the performance of the Remedial Action for the ARDC Landfill. The Draft ARDC Landfill RAWP shall be submitted in accordance with schedule in the ARDC Landfill Final Remedial Design and shall provide for construction and implementation of the remedy set forth in the ROD and achievement of the Performance Standards, in accordance with this Consent Decree, the ROD, Section VI of the SOW, and the design plans and specifications developed in accordance with the ARDC Landfill Final Remedial Design. Upon its approval by EPA, the draft ARDC RAWP shall become the ARDC Landfill Final RAWP and shall be incorporated into and enforceable under this Consent Decree. At the same time as Settling Defendant submits the ARDC Landfill RAWP for approval, Settling Defendant shall submit to EPA and the State a Health and Safety Plan for field

activities required by the ARDC Landfill RAWP that conforms to the applicable OSHA and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

b. The ARDC Landfill RAWP shall include the following: (1) schedule for completion of the Remedial Action; (2) method for selection of the contractor; (3) groundwater monitoring plan; (4) landfill gas monitoring plan; (5) methods for satisfying permitting requirements; (6) and procedures and plans for the decontamination of equipment and the disposal of contaminated materials. The ARDC Landfill RAWP also shall include the methodology for implementing all ARDC Landfill Remedial Action tasks identified in the final design submission.

c. Settling Defendant shall implement the activities required under the ARDC Landfill Final RAWP in accordance with the schedules therein. Settling Defendant shall submit to EPA and the State all reports and other deliverables required under the ARDC Landfill Final RAWP for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Unless otherwise directed by EPA, Settling Defendant shall not commence physical Remedial Action activities for the ARDC Landfill prior to approval of the ARDC Landfill RAWP.

15. Settling Defendant shall continue to implement the ARDC Landfill Remedial Action which includes Closure and Post-Closure activities in compliance with Title 132 until the Performance Standards are achieved and for so long thereafter as is otherwise required under this Consent Decree.

16. Modification of SOW or Related Work Plans.

a. If EPA determines that it is necessary to modify the work specified in the SOW and/or in work plans developed pursuant to the SOW to achieve and maintain the Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, and such modification is consistent with the scope of the remedy set forth in the ROD, then EPA may issue such modification in writing and shall notify Settling Defendant of such modification. For the purposes of this Paragraph and Paragraph 45 (Completion of the Work) only, the "scope of the remedy set forth in the ROD" is: in-situ chemical oxidation at LL1, long-term groundwater monitoring at LL1, implementation of Nebraska Title 132 closure and post closure requirements at the ARDC landfill, monitoring for 1,4-dioxane at the ARDC Landfill, and institutional controls at both LL1 and the ARDC Landfill. If Settling Defendant objects to the modification, Settling Defendant may, within 45 days after EPA's notification, seek dispute resolution under Paragraph 62 (Record Review).

b. The SOW and/or related work plans shall be modified: (1) in accordance with the modification issued by EPA; or (2) if Settling Defendant invokes dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this Consent Decree, and Settling Defendant shall implement all work required by such modification. Settling Defendant shall incorporate the modification into the Remedial Design or Remedial Action Work Plan under Paragraph 11 (LL1 Remedial Design), Paragraph 12 (LL1 Remedial Action), Paragraph 13 (ARDC Landfill Remedial Design) or Paragraph 14 (ARDC Landfill Remedial Action), as appropriate.

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

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

18. Off-Site Shipment of Waste Material.

a. Settling Defendant may ship Waste Material from the Site to an off-Site facility only if Settling Defendant verifies, prior to any shipment, that the off-Site facility is operating in compliance with the requirements of Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440, by obtaining a determination from EPA that the proposed receiving facility is operating in compliance with 42 U.S.C. § 9621(d)(3) and 40 C.F.R. § 300.440.

b. Settling Defendant may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, Settling Defendant provides written notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement shall not apply to any off-Site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice shall include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Defendant also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Defendant shall provide the written notice after the award of the contract for Remedial Action construction and before the Waste Material is shipped.

VII. REMEDY REVIEW

19. Periodic Review. Settling Defendant shall conduct any studies and investigations that EPA requests in order to permit EPA to conduct reviews of whether the Remedial Action for OU 5 is protective of human health and the environment at least every five years as required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations.

20. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Remedial Action for LL1 or the ARDC Landfill is not protective of human health and the environment, EPA may select further response actions in accordance with the requirements of CERCLA and the NCP.

21. Opportunity To Comment. Settling Defendant and, if required by Sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. § 9613(k)(2) or 9617, the public, will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c) of CERCLA and to submit written comments for the record during the comment period.

22. Settling Defendant's Obligation To Perform Further Response Actions. If EPA selects further response actions relating to OU 5, EPA may require Settling Defendant to perform such further response actions, but only to the extent that the reopener conditions in Paragraph 78 or Paragraph 79 (United States' Pre- and Post-Certification Reservations) are satisfied. Settling Defendant may invoke the procedures set forth in Section XVIII (Dispute Resolution) to dispute (a) EPA's determination that the reopener conditions of Paragraph 78 or Paragraph 79 are satisfied, (b) EPA's determination that the Remedial Action is not protective of human health and the environment, or (c) EPA's selection of the further response actions. Disputes pertaining to whether

the Remedial Action is protective or to EPA's selection of further response actions shall be resolved pursuant to Paragraph 62 (Record Review).

23. Submission of Plans. If Settling Defendant is required to perform further response actions pursuant to Paragraph 22, Settling Defendant shall submit a plan for such response action to EPA for approval in accordance with the procedures of Section VI (Performance of the Work by Settling Defendant). Settling Defendant shall implement the approved plan in accordance with this Consent Decree.

VIII. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

24. Quality Assurance.

a. Settling Defendant shall use quality assurance, quality control, and chain of custody procedures for all pilot study, design, compliance, and monitoring samples in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R5)" (EPA/240/B-01/003, March 2001, reissued May 2006), "Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/240/R-02/009, December 2002), and subsequent amendments to such guidelines upon notification by EPA to Settling Defendant of such amendment. Amended guidelines shall apply only to procedures conducted after such notification.

b. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendant shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") that is consistent with the SOW, the NCP, and applicable guidance documents. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree. Settling Defendant shall ensure that EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Defendant in implementing this Consent Decree. In addition, Settling Defendant shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Settling Defendant shall ensure that the laboratories it utilizes for the analysis of samples taken pursuant to this Consent Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods that are documented in the "USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4," and the "USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2," and any amendments made thereto during the course of the implementation of this Consent Decree; however, upon approval by EPA, after opportunity for review and comment by the State, Settling Defendant may use other analytical methods that are as stringent as or more stringent than the CLP-approved methods. Settling Defendant shall ensure that all laboratories Settling Defendant uses for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent quality assurance/quality control ("QA/QC") program. Settling Defendant shall use only laboratories that have a documented Quality System that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements. Settling Defendant shall ensure that all field methodologies utilized in

collecting samples for subsequent analysis pursuant to this Consent Decree are conducted in accordance with the procedures set forth in the QAPP approved by EPA.

25. Upon request, Settling Defendant shall allow split or duplicate samples to be taken by EPA and the State or their authorized representatives. Settling Defendant shall notify EPA and the State not less than 28 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA and the State shall have the right to take any additional samples that EPA or the State deems necessary. Upon request, EPA and the State shall allow Settling Defendant to take split or duplicate samples of any samples they take as part of Plaintiff's oversight of Settling Defendant's implementation of the Work.

26. Settling Defendant shall submit to EPA and the State two copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Settling Defendant with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise.

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

IX. ACCESS AND INSTITUTIONAL CONTROLS

28. If the Site, or any other real property where access or land use restrictions are needed, is owned or controlled by Settling Defendant:

a. Settling Defendant shall, commencing on the date of lodging of the Consent Decree, provide the United States and the State, and their representatives, contractors, and subcontractors, with access at all reasonable times to the Site, or such other real property, to conduct any activity regarding the Consent Decree including, but not limited to, the following activities:

(1) Monitoring the Work;

(2) Verifying any data or information submitted to the United States or the State;

(3) Conducting investigations regarding contamination at or near the Site;

(4) Obtaining samples;

(5) Assessing the need for, planning, or implementing additional response actions at or near the Site;

(6) Assessing implementation of quality assurance and quality control practices;

(7) Implementing the Work pursuant to the conditions set forth in Paragraph 82 (Work Takeover);

(8) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendant or its agents, consistent with Section XXIII (Access to Information);

(9) Assessing Settling Defendant's compliance with the Consent Decree;

(10) Determining whether the Site or other real property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Consent Decree; and

(11) Implementing, monitoring, maintaining, reporting on, and enforcing any Institutional Controls.

b. commencing on the date of lodging of the Consent Decree, Settling Defendant shall not use the Site, or such other real property, in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action or O&M at LL1 or the Remedial Action at the ARDC Landfill or to any other part of the Site.

c. Settling Defendant shall

(1) execute and record in the appropriate land records office Environmental Covenants that: (i) grant a right of access to conduct any activity regarding the Consent Decree including, but not limited to, those activities listed in Paragraph 28.a; and (ii) grant the right to enforce the land use restrictions consistent with Paragraph 28.b, and file Environmental Covenants pertaining to LL1 and to the ARDC Landfill in a form substantially similar to Appendix D and acceptable to EPA. The Environmental Covenants shall be granted to one or more of the following persons, as determined by EPA: (i) the United States, on behalf of EPA, and its representatives; (ii) the State and its representatives; and/or (iii) other appropriate grantees.

(2) submit to EPA for review and approval regarding such real property: (i) draft Environmental Covenants, in substantially the form attached hereto as Appendix D, that are enforceable under state law; and (ii) a current title insurance commitment or other evidence of title acceptable to EPA, that shows title to the land affected by the Environmental Covenants to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances or when, despite best efforts, Settling Defendant is unable to obtain release or subordination of such prior liens or encumbrances).

(3) within 30 days after EPA's approval and acceptance of the Environmental Covenants and the title evidence, update the title search and, if it is determined that nothing has occurred since the effective date of the commitment, or other title evidence, to affect the title adversely, record the Environmental Covenants with the appropriate land records office. Within 60 days after recording the Environmental Covenants, Settling Defendant shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded Environmental Covenants showing the clerk's recording stamps. If the Environmental Covenants are to be conveyed to the United States, the Environmental Covenants and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001, and approval of the sufficiency of title shall be obtained as required by 40 U.S.C. § 3111.

29. If the Site, or any other real property where access and/or land/water use restrictions are needed, is owned or controlled by persons other than Settling Defendant:

a. Settling Defendant shall use best efforts to secure from such persons:

(1) an agreement to provide access thereto for the United States, the State, and Settling Defendant, and their representatives, contractors, and subcontractors, to conduct any activity regarding the Consent Decree including, but not limited to, the activities listed in Paragraph 28.a;

(2) an agreement, enforceable by Settling Defendant and the United States, to refrain from using the Site, or such other real property, in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action. The agreement shall include, but not be limited to, the land/water use restrictions listed in Paragraph 28.b; and

(3) the execution and recordation in the appropriate land records office of an Environmental Covenant, that (i) grants a right of access to conduct any activity regarding the Consent Decree including, but not limited to, those activities listed in Paragraph 28.a, and (ii) grant the right to enforce the land/water use restrictions set forth in Paragraph 28.b. and in Appendix D. The Environmental Covenant shall be granted to one or more of the following persons, as determined by EPA: (i) the United States, on behalf of EPA, and its representatives, (ii) the State and its representatives, (iii) Settling Defendant and its representatives, and/or (iv) other appropriate grantees. The Environmental Covenant, other than one granted to the United States, shall include a designation that EPA (and/or the State as appropriate) is a third party beneficiary, allowing EPA to maintain the right to enforce the Environmental Covenant without acquiring an interest in real property. If any Environmental Covenant is granted to Settling Defendant pursuant to this Paragraph 29.a(3), then Settling Defendant shall monitor, maintain, report on, and enforce such Environmental Covenant.

Within 60 days after the Effective Date, Settling Defendant shall submit to EPA for review and approval regarding such property: (i) draft Environmental Covenants, in substantially the form attached hereto as Appendix D, that are enforceable under state law; and (ii) a current title insurance commitment, or other evidence of title acceptable to EPA, that shows title to the land affected by the Environmental Covenants to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances or when, despite best efforts, Settling Defendant are unable to obtain release or subordination of such prior liens or encumbrances).

b. Within 30 days of EPA's approval and acceptance of the Environmental Covenants and the title evidence, Settling Defendant shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment, or other title evidence, to affect the title adversely, record the Environmental Covenants with the appropriate land records office. Within 60 days after the recording of the Environmental Covenants, Settling Defendant shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded Environmental Covenants showing the clerk's recording stamps. If the Environmental Covenants are to be conveyed to the United States, the Environmental Covenants and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001, and approval of the sufficiency of title shall be obtained as required by 40 U.S.C. § 3111.

30. For purposes of Paragraphs 28.c(2) and 29.a, "best efforts" includes the payment of reasonable sums of money to obtain access, an agreement to restrict land use, and/or an agreement to

release or subordinate a prior lien or encumbrance. If, within 90 days after the Effective Date, Settling Defendant has not: (a) obtained agreements to provide access, restrict land/water use, or record the Environmental Covenants, as required by Paragraphs 29.a(1), 29.a(2), or 29.a(3); or (b) obtained, pursuant to Paragraph 28.c(2), agreements from the holders of prior liens or encumbrances to release or subordinate such liens or encumbrances to the Environmental Covenants, Settling Defendant shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that Settling Defendant has taken to attempt to comply with Paragraph 28 or 29. The United States may, as it deems appropriate, assist Settling Defendant in obtaining access, agreements to restrict land/water use, or the release or subordination of a prior lien or encumbrance. Settling Defendant shall reimburse the United States under Section XV (Payments for Response Costs) for all costs incurred, direct or indirect, by the United States in obtaining such access, agreements to restrict land/water use, and/or the release/subordination of prior liens or encumbrances including, but not limited to, the cost of attorney time and the amount of monetary consideration paid or just compensation.

31. If EPA determines that Institutional Controls in the form of state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls are needed at or in connection with OU 5, Settling Defendant shall cooperate with EPA's efforts to secure and ensure compliance with such governmental controls.

32. Notwithstanding any provision of the Consent Decree, the United States retains all of its access authorities and rights, as well as all of its rights to require Institutional Controls, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

X. REPORTING REQUIREMENTS

33. In addition to any other requirement of this Consent Decree, Settling Defendant shall submit to EPA and the State two copies of written quarterly progress reports, beginning three months after the Effective Date and every three months thereafter. The reports shall: (a) describe the actions that have been taken toward achieving compliance with this Consent Decree during the previous quarter; (b) include a summary of all results of sampling and tests and all other data received or generated by Settling Defendant or its contractors or agents in the previous quarter; (c) identify all plans, reports, and other deliverables required by this Consent Decree completed and submitted during the previous quarter; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, that are scheduled for the next two quarters and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts and Pert charts; (e) include information regarding percentage of completion, unresolved 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; and (f) include any modifications to the work plans or other schedules that Settling Defendant has proposed to EPA or that have been approved by EPA. Settling Defendant shall submit these progress reports quarterly to EPA and the State until EPA notifies Settling Defendant pursuant to Paragraph 43.b of Section XIII (Certification of Completion) that no further progress reports are required. If requested by EPA, Settling Defendant shall also provide briefings for EPA to discuss the progress of the Work. Such briefings may occur telephonically if agreed by Settling Defendant and EPA.

34. Settling Defendant shall notify EPA of any change in the schedule described in the quarterly progress report for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than seven days prior to the performance of the activity.

35. Upon the occurrence of any event during performance of the Work that Settling Defendant is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act ("EPCRA"), 42 U.S.C. § 11004, Settling Defendant shall, within 24 hours of the onset of such event, orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator nor Alternate EPA Project Coordinator is available, the Emergency Response Section, Region VII, United States Environmental Protection Agency. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

36. Within 20 days after the onset of such an event, Settling Defendant shall furnish to EPA a written report, signed by Settling Defendant's Project Coordinator, setting forth the events that occurred and the measures taken, and to be taken, in response thereto. Within 30 days after the conclusion of such an event, Settling Defendant shall submit a report setting forth all actions taken in response thereto.

37. Settling Defendant shall submit two copies of all plans, reports, data, and other deliverables required by the SOW or any other approved plans to EPA in accordance with the schedules set forth in such plans. Settling Defendant shall simultaneously submit two copies of all such plans, reports, data, and other deliverables to the State. Upon request by EPA, Settling Defendant shall submit in electronic form all or any portion of any deliverables Settling Defendant is required to submit pursuant to the provisions of this Consent Decree.

38. All deliverables submitted by Settling Defendant to EPA that purport to document Settling Defendant's compliance with the terms of this Consent Decree shall be signed by an authorized representative of Settling Defendant.

XI. EPA APPROVAL OF PLANS, REPORTS, AND OTHER DELIVERABLES

39. Initial Submissions.

a. After review of any plan, report, or other deliverable that is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (1) approve, in whole or in part, the submission; (2) approve the submission upon specified conditions; (3) disapprove, in whole or in part, the submission; or (4) any combination of the foregoing.

b. EPA also may modify the initial submission to cure deficiencies in the submission if: (1) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work; or (2) 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 plan, report, or deliverable.

40. Resubmissions. Upon receipt of a notice of disapproval under Paragraph 39.a(3) or (4), or if required by a notice of approval upon specified conditions under Paragraph 39.a(2), Settling Defendant shall, within 30 days or such longer time as specified by EPA in such notice, correct the

deficiencies and resubmit the plan, report, or other deliverable for approval. After review of the resubmitted plan, report, or other deliverable, EPA may: (a) approve, in whole or in part, the resubmission; (b) approve the resubmission upon specified conditions; (c) modify the resubmission; (d) disapprove, in whole or in part, the resubmission, requiring Settling Defendant to correct the deficiencies; or (e) any combination of the foregoing.

41. Material Defects. If an initially submitted or resubmitted plan, report, or other deliverable contains a material defect, and the plan, report, or other deliverable is disapproved or modified by EPA under Paragraph 39.b(2) or 40 due to such material defect, then the material defect shall constitute a lack of compliance for purposes of Paragraph 66. The provisions of Section XVIII (Dispute Resolution) and Section XIX (Stipulated Penalties) shall govern the accrual and payment of any stipulated penalties regarding Settling Defendant's submissions under this Section.

42. Implementation. Upon approval, approval upon conditions, or modification by EPA under Paragraph 39 (Initial Submissions) or Paragraph 40 (Resubmissions), of any plan, report, or other deliverable, or any portion thereof: (a) such plan, report, or other deliverable, or portion thereof, shall be incorporated into and enforceable under this Consent Decree; and (b) Settling Defendant shall take any action required by such plan, report, or other deliverable, or portion thereof, subject only to its right to invoke the Dispute Resolution procedures set forth in Section XVIII (Dispute Resolution) with respect to the modifications or conditions made by EPA. The implementation of any non-deficient portion of a plan, report, or other deliverable submitted or resubmitted under Paragraph 39 or 40 shall not relieve Settling Defendant of any liability for stipulated penalties under Section XIX (Stipulated Penalties).

XII. PROJECT COORDINATORS

43. Within 20 days after lodging this Consent Decree, Settling Defendant and EPA will notify each other, in writing, of the name, address, telephone number, and email address of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other Parties at least five working days before the change occurs, unless impracticable, but in no event later than the actual day the change is made. Settling Defendant's Project Coordinator shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the Work. Settling Defendant's Project Coordinator shall not be an attorney for any Settling Defendant in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

44. Plaintiff may designate other representatives, including, but not limited to, EPA employees, and federal contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and an On-Scene Coordinator ("OSC") by the NCP, 40 C.F.R. Part 300. EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the NCP, to halt any Work required by this Consent Decree and to take any necessary response action when he or she determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

XIII. CERTIFICATION OF COMPLETION OF THE REMEDIAL ACTION

45.

a. LL1: When Settling Defendant has collected monitoring data that indicate the Performance Standard for 1,4-dioxane at LL1 has been achieved and maintained , Settling Defendant shall submit a Monitoring Report which presents such data to EPA. If, after review of the Monitoring Report and after reasonable opportunity for review and comment by the State, EPA disagrees with the conclusion in the Monitoring Report, EPA will notify Settling Defendant in writing of the changes that are required, provided, however, that EPA may only require Settling Defendant to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy set forth in the ROD," as that term is defined in Paragraph 16.a. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW. Settling Defendant shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to their right to invoke the dispute resolution procedures set forth in Section XVIII (Dispute Resolution).

b. ARDC Landfill: Within 90 days after Settling Defendant concludes that all phases of the Work at the ARDC Landfill, other than any remaining activities required under Section VII (Remedy Review), have been fully performed, Settling Defendant shall schedule and conduct a pre-certification inspection to be attended by Settling Defendant, EPA, and the State. If, after the pre-certification inspection, Settling Defendant still believes that the Work has been fully performed, Settling Defendant shall submit a written report by a registered professional engineer stating that the Work has been completed in full satisfaction of the requirements of this Consent Decree. The report shall be signed by a responsible corporate official of Settling Defendant or Settling Defendant's Project Coordinator. If, after review of the written report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Work has not been completed in accordance with this Consent Decree, EPA will notify Settling Defendant in writing of the activities that must be undertaken by Settling Defendant pursuant to this Consent Decree to complete the Work, provided, however, that EPA may only require Settling Defendant to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy set forth in the ROD," as that term is defined in Paragraph 16.a. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require Settling Defendant to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Settling Defendant shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to their right to invoke the dispute resolution procedures set forth in Section XVIII (Dispute Resolution). Upon completion of the ARDC Landfill cap, the parties intend that oversight of the closure and post-closure plan may be taken over by the NDEQ and that EPA will retain its enforcement authority under this Consent Decree.

c. If EPA concludes, based on the initial or any subsequent request for Certification of Completion of the Remedial Action by Settling Defendant and after a reasonable opportunity for review and comment by the State, that the Remedial Action has been performed in accordance with this Consent Decree, EPA will so notify Settling Defendant in writing.

XIV. EMERGENCY RESPONSE

46. If any action or occurrence during the performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Defendant shall, subject to Paragraph 47, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify the EPA's Project Coordinator, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these persons is available, Settling Defendant shall notify the EPA Emergency Response Unit, Region VII. Settling Defendant shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the SOW. In the event that Settling Defendant fails to take appropriate response action as required by this Section, and EPA takes such action instead, Settling Defendant shall reimburse EPA all costs of the response action under Section XV (Payments for Response Costs).

47. Subject to Section XX (Covenants by Plaintiff), nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States (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.

XV. PAYMENTS FOR RESPONSE COSTS

48. Payments by Settling Defendant for Future Response Costs. Settling Defendant shall pay to EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis, EPA will send Settling Defendant a bill requiring payment that includes a cost summary, which includes direct and indirect costs incurred by EPA and its contractors and a DOJ case cost summary. Settling Defendant shall make all payments within 60 days after Settling Defendant' s receipt of each bill requiring payment, except as otherwise provided in Paragraph 5056, in accordance with Paragraph 49.aa (Instructions for Future Response Cost Payments).

49. Payment Instructions for Settling Defendant.

a. Instructions for Future Response Costs Payments Response Costs and Stipulated Penalties. All payments required, elsewhere in this Consent Decree, are to be made in accordance with this Paragraph 49.a and deposited in the Former Nebraska Ordnance Site Special Account within the EPA Hazardous Substances Superfund. Payments shall be by one of the methods identified below.

For Fedwire EFT :

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York NY 10045

Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

For ACH payment:

PNC Bank
808 17th Street, NW
Washington, DC 20074
Contact – Jesse White 301-887-6548
ABA = 051036706
Transaction Code 22 - checking
Environmental Protection Agency
Account 310006
CTX Format

For online payment:

Payment shall be made at https://www.pay.gov to the U.S. EPA account in accordance with instructions to be provided to Settling Defendant by EPA following lodging of the Consent Decree.

For official bank check, made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making the payment. Settling Defendant shall send the check(s) to:

US Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
PO Box 979076
St. Louis, MO 63197-9000

b. Instructions for All Payments. All payments made under Paragraph 49.a shall reference the Consolidated Debt Collection System Number (which shall be provided to Settling Defendant by the Financial Litigation Unit of the U.S. Department of Justice), Site/Spill ID Number 077RP and DOJ Case Number 90-11-2-07548/4. At the time of any payment required to be made in accordance with Paragraph 49.a, Settling Defendant shall send notice that payment has been made to the United States, and to EPA, in accordance with Section XXV (Notices and Submissions), and to the EPA Cincinnati Finance Office by email at acctsreceivable.cinwd@epa.gov, or by mail at 26 Martin Luther King Drive, Cincinnati, Ohio 45268. Such notice shall also reference the CDCS Number, Site/Spill ID Number 077RP, and DOJ Case Number.

50. Settling Defendant may contest any Future Response Costs billed under Paragraph 48 (Payments by Settling Defendant for Future Response Costs) if Settling Defendant 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 Settling Defendant 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 objection shall be made in writing within 60 days after receipt of the bill and must be sent to the United States pursuant to Section XXV (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection,

Settling Defendant shall pay all uncontested Future Response Costs to the United States within 60 days after Settling Defendant's receipt of the bill requiring payment. Simultaneously, Settling Defendant 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. Settling Defendant shall send to the United States, as provided in Section XXV (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. Simultaneously with establishment of the escrow account, Settling Defendant shall initiate the Dispute Resolution procedures in Section XVIII (Dispute Resolution). If the United States prevails in the dispute, Settling Defendant shall pay the sums due (with accrued interest) to the United States within 15 days after the resolution of the dispute. If Settling Defendant prevails concerning any aspect of the contested costs, Settling Defendant shall pay that portion of the costs (plus associated accrued interest) for which Settling Defendant did not prevail to the United States within 15 days after the resolution of the dispute. Settling Defendant shall be disbursed any balance of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with Paragraphs 49.a (Instructions for Future Response Cost Payments). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XVIII (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Settling Defendant's obligation to reimburse the United States for its Future Response Costs.

51. Interest. In the event that any payment for Future Response Costs required under this Section is not made by the date required, Settling Defendant shall pay Interest on the unpaid balance. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of Settling Defendant's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of Settling Defendant's failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Paragraph 67.

XVI. INDEMNIFICATION AND INSURANCE

52. Settling Defendant's Indemnification of the United States.

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

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

b. The United States shall give Settling Defendant notice of any claim for which the United States plans to seek indemnification pursuant to this Paragraph 52, and shall consult with Settling Defendant prior to settling such claim.

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

54. No later than 15 days before commencing any on-site Work, Settling Defendant shall secure, and shall maintain until the first anniversary after the Remedial Action has been performed in accordance with this Consent Decree and the Performance Standards have been achieved, commercial general liability insurance with limits of one million dollars, for any one occurrence, and automobile liability insurance with limits of one million dollars, combined single limit, naming the United States as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Settling Defendant pursuant to this Consent Decree. In addition, for the duration of this Consent Decree, Settling Defendant shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Defendant in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Defendant shall provide to EPA certificates of such insurance and a copy of each insurance policy. Settling Defendant shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. Nothwithstanding anything to the contrary herein, EPA acknowledges and agrees that Settling Defendant may self-insure. If Settling Defendant 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, Settling Defendant needs provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor.

XVII. FORCE MAJEURE

55. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Settling Defendant, of any entity controlled by Settling Defendant, or of Settling Defendant's contractors that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendant's best efforts to fulfill the obligation. The requirement that Settling Defendant exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that

the delay and any adverse effects of the delay are minimized to the greatest extent possible. Force majeure does not include financial inability to complete the Work or a failure to achieve the Performance Standards.

56. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree for which Settling Defendant intends or may intend to assert a claim of force majeure, Settling Defendant 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 Superfund Division, EPA Region VII, within 48 hours of when Settling Defendant first knew that the event might cause a delay. Within 10 days thereafter, Settling Defendant 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; Settling Defendant's rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Settling Defendant, such event may cause or contribute to an endangerment to public health or welfare, or the environment. Settling Defendant shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Settling Defendant shall be deemed to know of any circumstance of which Settling Defendant, any entity controlled by Settling Defendant, or Settling Defendant's contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Settling Defendant from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 55 and whether Settling Defendant has exercised its best efforts under Paragraph 55, EPA may, in its unreviewable discretion, excuse in writing Settling Defendant's failure to submit timely notices under this Paragraph.

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

58. If Settling Defendant elects to invoke the dispute resolution procedures set forth in Section XVIII (Dispute Resolution), it shall do so no later than 30 days after receipt of EPA's notice. In any such proceeding, Settling Defendant 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 Settling Defendant complied with the requirements of Paragraphs 55 and 56. If Settling Defendant carries this burden, the delay at issue shall be deemed not to be a violation by Settling Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

XVIII. DISPUTE RESOLUTION

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

60. Any dispute regarding this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed 30 days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

61. 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 14 days after the conclusion of the informal negotiation period, Settling Defendant 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 Settling Defendant. The Statement of Position shall specify Settling Defendant's position as to whether formal dispute resolution should proceed under Paragraph 62 (Record Review) or 63.

b. Within 21 days after receipt of Settling Defendant's Statement of Position, EPA will serve on Settling Defendant 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 Paragraph 62 (Record Review) or Paragraph 63. Within 15 days after receipt of EPA's Statement of Position, Settling Defendant may submit a Reply.

c. If there is disagreement between EPA and Settling Defendant as to whether dispute resolution should proceed under Paragraph 62 (Record Review) or 63, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if Settling Defendant ultimately appeal 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 Paragraphs 62 and 63.

62. Record Review. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation, the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree, and the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendant 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 Branch Chief for the Iowa/Nebraska Branch, Superfund Division, EPA Region VII, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 62.a. This decision shall be binding upon Settling Defendant, subject only to the right to seek judicial review pursuant to Paragraphs 62.c and 62.d.

c. Any administrative decision made by EPA pursuant to Paragraph 62.b shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by Settling Defendant with the Court and served on all Parties within ten days after receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Defendant's motion.

d. In proceedings on any dispute governed by this Paragraph, Settling Defendant shall have the burden of demonstrating that the decision of the Branch Chief of the Superfund Division 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 Paragraph 62.a.

63. 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. Following receipt of Settling Defendant's Statement of Position submitted pursuant to Paragraph 59, the Branch Chief of the Superfund Division, Iowa/Nebraska Branch, EPA Region VII, will issue a final decision resolving the dispute. The Branch Chief's decision shall be binding on Settling Defendant unless, within 21 days after receipt of the decision, Settling Defendant files with the Court and serves on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to Settling Defendant's motion.

b. Notwithstanding Paragraph M (CERCLA Section 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.

64. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone, or affect in any way any obligation of Settling Defendant under this Consent Decree, not directly in dispute, unless EPA or the Court agrees otherwise. 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 Paragraph 69. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that Settling Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XIX (Stipulated Penalties).

XIX. STIPULATED PENALTIES

65. Settling Defendant shall be liable for stipulated penalties in the amounts set forth in Paragraphs 66 and 67 to the United States for failure to comply with the requirements of this

Consent Decree specified below, unless excused under Section XVII (Force Majeure). "Compliance" by Settling Defendant shall include completion of all payments and activities required under this Consent Decree, or any plan, report, or other deliverable approved under this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans, reports, or other deliverables approved under this Consent Decree and within the specified time schedules established by and approved under this Consent Decree.

66. Stipulated Penalty Amounts for inadequate or untimely Remedial Design or Remedial Action.

These stipulated penalties shall accrue per violation per day for any noncompliance relating to implementation of Remedial Design and Remedial Action identified in Paragraphs 11, 12, 13, and 14.

Penalty Per Violation Per Day	Period of Noncompliance
$1000	1st through 14th day
$1500	15th through 30th day
$2500	31st day and beyond

67. Stipulated Penalty Amounts for failure to adequately or timely perform the following:

a. Untimely or inadequate performance of the following requirements of the Consent Decree:

Make timely payments of response costs in compliance with Section XV; Secure and maintain insurance in compliance with Section XVI; ; Obtain access for EPA, the State, and their contractors in compliance with Section IX; File Environmental Covenants in compliance with Section IX; Take action and notify EPA in the event of an emergency in compliance with Section XIV; Provide notice to successor in title; Modify the SOW or other plan in compliance with Paragraph 15.

Penalty Per Violation Per Day	Period of Noncompliance
$500	1st through 14th day
$1000	15th through 30th day
$1500	31st day and beyond

b. Untimely or inadequate reports or other plans or deliverables, not identified in Paragraph 67.a. but required by the Consent Decree:

Penalty Per Violation Per Day	Period of Noncompliance
$500	1st through 14th day
$100	15th through 30th day
$1500	31st day and beyond

68. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 82 (Work Takeover), Settling Defendant shall be liable for a stipulated penalty in the amount of $350,000. Stipulated penalties under this Paragraph are in addition to the remedies available under Paragraph 82 (Work Takeover).

69. 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 Section XI (EPA Approval of Plans, Reports, and Other Deliverables), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Settling Defendant of any deficiency; (b) with respect to a decision by the Branch Chief of the Superfund Division, Iowa/Nebraska Branch, EPA Region VII, under Paragraph 62.b or 63.a of Section XVIII (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that Settling Defendant's reply to EPA's Statement of Position is received until the date that the Branch Chief issues a final decision regarding such dispute; or (c) with respect to judicial review by this Court of any dispute under Section XVIII (Dispute Resolution), during the period, if any, beginning on the 31st day after the Court's receipt of the final submission regarding the dispute until the date that the Court issues a final decision regarding such dispute. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

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

71. All penalties accruing under this Section shall be due and payable to the United States within 60 days after Settling Defendant's receipt from EPA of a demand for payment of the penalties, unless Settling Defendant invokes the Dispute Resolution procedures under Section XVIII (Dispute Resolution) within the 60-day period. All payments to the United States under this Section shall indicate that the payment is for stipulated penalties and shall be made in accordance with Paragraph 49.aa (Instructions for Future Response Cost Payments).

72. Penalties shall continue to accrue as provided in Paragraph 69 during any dispute resolution period, but need not be paid until the following:

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

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Defendant shall pay all accrued penalties determined by the Court to be owed to EPA within 60 days after receipt of the Court's decision or order, except as provided in Paragraph 728.c;

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

73. If Settling Defendant fails to pay stipulated penalties when due, Settling Defendant shall pay Interest on the unpaid stipulated penalties as follows: (a) if Settling Defendant has timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are

due pursuant to Paragraph 70 until the date of payment; and (b) if Settling Defendant fails to timely invoke dispute resolution, Interest shall accrue from the date of demand under Paragraph 71 until the date of payment. If Settling Defendant fails to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

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

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

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

XX. COVENANTS BY PLAINTIFF

77. In consideration of the actions that will be performed and the payments that will be made by Settling Defendant under this Consent Decree, and except as specifically provided in Paragraphs 78-79 (United States' Pre-and Post-Certification Reservations) and 81 (General Reservations of Rights), the United States covenants not to sue or to take administrative action against Settling Defendant pursuant to Sections 106 and 107(a) of CERCLA, relating to OU 5. With respect to future liability, these covenants shall take effect upon Certification of Completion of the Remedial Action by EPA pursuant to Paragraph 45. These covenants are conditioned upon the satisfactory performance by Settling Defendant of its obligations under this Consent Decree. These covenants extend only to Settling Defendant and do not extend to any other person.

78. United States' Pre-Certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, and/or to issue an administrative order, seeking to compel Settling to perform further response actions relating to the Site and/or to pay the United States for additional costs of response if, (a) prior to Certification of Completion of the Remedial Action, (1) conditions at the Site, previously unknown to EPA, are discovered, or (2) information, previously unknown to EPA, is received, in whole or in part, and (b) EPA determines that these previously unknown conditions or information together with any other relevant information indicates that the Remedial Action is not protective of human health or the environment.

79. United States' Post-Certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, and/or to issue an administrative order, seeking to compel Settling Defendant to perform further response actions relating to the Site and/or to pay the United States for additional costs of response if, (a) subsequent to Certification of Completion of the Remedial Action, (1) conditions at the Site, previously unknown to EPA, are discovered, or (2) information, previously unknown to EPA, is received, in whole or in part, and

(b) EPA determines that these previously unknown conditions or this information together with other relevant information indicate that the Remedial Action is not protective of human health or the environment.

80. For purposes of Paragraph 78 (United States' Pre-Certification Reservations), the information and the conditions known to EPA will include only that information and those conditions known to EPA as of the date the ROD was signed and set forth in the ROD for the Site and the administrative record supporting the ROD. For purposes of Paragraph 79 (United States' Post-Certification Reservations), the information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date of Certification of Completion, as set forth in Section XIII and in the ROD, the administrative record supporting the ROD, the post-ROD administrative record, or in any information received by EPA pursuant to the requirements of this Consent Decree prior to Certification of Completion as set forth in Section XIII.

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

a. liability for failure by Settling Defendant to meet a requirement of this Consent Decree;

b. liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of OU 5;

c. liability based on the ownership of the Site by Settling Defendant when such ownership commences after signature of this Consent Decree by Settling Defendant;

d. liability based on the operation of the Site by Settling Defendant when such operation commences after signature of this Consent Decree by Setting Defendant and does not arise solely from Settling Defendant's performance of the Work;

e. liability based on Settling Defendant's transportation, treatment, storage, or disposal, or arrangement for transportation, treatment, storage, or disposal of Waste Material at or in connection with the Site, other than as provided in the ROD, the Work, or otherwise ordered by EPA, after signature of this Consent Decree by Settling Defendant;

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

g. criminal liability;

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

i. prior to achievement of Performance Standards in accordance with Paragraphs 12 and 14 and Section III.B. of the SOW, liability 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 Paragraph 16 (Modification of SOW or Related Work Plans);

j. liability for costs that the United States will incur regarding OU 5 but that are not within the definition of Future Response Costs.

k. liability for releases from the ARDC Landfill of hazardous substances into the groundwater above their maximum contaminant levels established under the Safe Drinking Water Act, 42 U.S.C. 300f *et seq.* or with respect to 1.4-dioxane, above the preliminary remediation goal established by EPA.

82. Work Takeover.

a. In the event EPA determines that Settling Defendant has (1) ceased implementation of any portion of the Work, or (2) is seriously or repeatedly deficient or late in its performance of the Work, or (3) is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Settling Defendant. Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Settling Defendant a period of 30 days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

b. If, after expiration of the 30-day notice period specified in Paragraph 82.1.a, Settling Defendant has not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary ("Work Takeover"). EPA will notify Settling Defendant in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph 82.b.

c. Settling Defendant may invoke the procedures set forth in Paragraph 62 (Record Review), to dispute EPA's implementation of a Work Takeover under Paragraph 82.b. However, notwithstanding Settling Defendant's invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under Paragraph 82.b until the earlier of (1) the date that Settling Defendant remedies, 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 Paragraph 60 (Record Review) requiring EPA to terminate such Work Takeover.

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

XXI. COVENANTS BY SETTLING DEFENDANT

84. Covenants by Settling Defendant. Subject to the reservations in Paragraph 86, Settling Defendant covenants not to sue and agrees not to assert any claims or causes of action against the United States with respect to the Site and this Consent Decree, including, but not limited to:

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

b. any claims under CERCLA Sections 107 or 113, RCRA Section 7002(a), 42 U.S.C. § 6972(a), or state law regarding the Site, and this Consent Decree; or

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

85. Except as provided in Paragraph 91 (Res Judicata and Other Defenses), the covenants in this Section shall not apply if the United States brings a cause of action or issues an order pursuant to any of the reservations in Section XX (Covenants by Plaintiff), other than in Paragraphs 81.a (claims for failure to meet a requirement of the Consent Decree), 81.g (criminal liability), and 81.h (violations of federal/state law during or after implementation of the Work), but only to the extent that Settling Defendant's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

86. Settling Defendant reserves, and this Consent Decree is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of Settling Defendant's plans, reports, other deliverables or activities. Nothing in this Consent Decree shall be deemed to constitute 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). Except as specifically provided for in this Consent Decree, nothing herein shall limit or otherwise alter or affect Settling Defendant's rights, defenses, causes of action, claims or interests, or ability to assert the same, whether arising under or pursuant to state, federal, or common law whatsoever, whether against Plaintiff or others, and all such rights, defenses, causes of action, or interests are hereby fully reserved.

XXII. EFFECT OF SETTLEMENT; CONTRIBUTION

87. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. The Parties expressly reserve 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 Consent Decree diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

88. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially approved settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Settling Defendant is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, or as may be otherwise provided by law, for "matters addressed" in this Consent Decree. The "matters addressed" in this Consent Decree are all response actions taken or to be taken and all response costs incurred or to be incurred, at or in connection with OU 5, by the United States or any other person, except for the State, provided, however, that if the United States exercises rights other than in Paragraphs 81.a (claims for failure to meet a requirement of the Consent Decree: 81.g (criminal liability), or 81.h (violations of federal/state law during or after implementation of the Work), the "matters addressed" in this Consent Decree will no longer include those response costs or response

actions . Settling Defendant shall, with respect to any suit or claim brought by it for matters related to this Consent Decree, notify the United States in writing no later than 30 days prior to the initiation of such suit or claim.

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

90. 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 OU 5, Settling Defendant shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XX (Covenants by Plaintiff).

XXIII. ACCESS TO INFORMATION

91. Settling Defendant shall provide to EPA, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within its possession or control or that of its contractors or agents relating to activities at OU 5 or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. Settling Defendant shall also make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

92. Business Confidential and Privileged Documents.

a. Settling Defendant may assert business confidentiality claims covering part or all of the Records submitted to Plaintiff under this Consent Decree 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). Records 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 Settling Defendant 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 Settling Defendant.

b. Settling Defendant may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendant asserts such a privilege in lieu of providing Records, it shall provide Plaintiff with the following: (1) the title of the Record; (2) the date of the Record; (3) the name, title, affiliation (e.g., company or firm), and address of the author of the Record; (4) the name and title of each addressee and recipient; (5) a description of the contents of the Record; and (6) the privilege asserted by Settling Defendant. If a claim of privilege applies only to a portion of a Record, the Record shall be provided to the United States in redacted form to mask the privileged portion only. Settling Defendant shall retain

all Records that it claims to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in the Settling Defendant's favor.

c. No Records created or generated pursuant to the requirements of this Consent Decree shall be withheld from the United States on the grounds that they are privileged or confidential.

93. No claim of confidentiality or privilege shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XXIV. RETENTION OF RECORDS

94. Until ten years after Settling Defendant's receipt of EPA's notification pursuant to Paragraph 45.c (Completion of the Work), Settling Defendant shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site, provided, however, that Settling Defendant must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to the Site. Settling Defendant 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 Settling Defendant (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.

95. At the conclusion of this record retention period, Settling Defendant shall notify the United States at least 90 days prior to the destruction of any such Records, and, upon request by the United States, Settling Defendant shall deliver any such Records to EPA. Settling Defendant may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendant asserts such a privilege, Settling Defendant shall provide Plaintiff with the following: (a) the title of the Record; (b) the date of the Record; (c) the name, title, affiliation (e.g., company or firm), and address of the author of the Record; (d) the name and title of each addressee and recipient; (e) a description of the subject of the Record; and (f) the privilege asserted by Settling Defendant. If a claim of privilege applies only to a portion of a Record, the Record shall be provided to the United States in redacted form to mask the privileged portion only. Settling Defendant shall retain all Records that they claim to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in the Settling Defendant's favor. However, no Records created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged or confidential.

96. Settling Defendant certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Site since the earlier of notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for

information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXV. NOTICES AND SUBMISSIONS

97. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified in this Section shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, and Settling Defendant, respectively. Notices required to be sent to EPA, and not to the United States, under the terms of this Consent Decree should not be sent to the U.S. Department of Justice.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-11-2-07548/4

As to EPA:

Cecilia Tapia
Director, Superfund Division
United States Environmental Protection Agency
Region VII
11201 Renner Blvd.
Lenexa, Kansas 66219

and:

Sandeep Mehta
Project Coordinator
United States Environmental Protection Agency
Region VII
11201 Renner Blvd.
Lenexa, Kansas 66219

As to the State:

Stacey Stricker
Nebraska Department of Environmental Quality
Project Coordinator
1200 N Street, Suite 400
P.O. Box 98922
Lincoln, NE 68509

As to Settling Defendant:

Bruce Haley, P.G.

Project Coordinator
University of Nebraska
Environmental Health and Safety
3630 East Campus Loop
Lincoln, Nebraska 68583-0824

and

Stacia L Palser
Associate General Counsel
University of Nebraska
3835 Holdrege Street
Lincoln, Nebraska 68583-0745

XXVI. RETENTION OF JURISDICTION

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

XXVII. APPENDICES

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

"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 draft form of Environmental Covenant.

XXVIII. COMMUNITY INVOLVEMENT

100. If requested by EPA, Settling Defendant shall participate in community involvement activities pursuant to the community involvement plan to be developed by EPA. EPA will determine the appropriate role for Settling Defendant under the Plan. Settling Defendant shall also cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Settling Defendant shall participate in the preparation of such information for dissemination to the public and in public meetings that may be held or sponsored by EPA or the State to explain activities at or relating to the Site. Costs incurred by the United States under this Section, including the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e), shall be considered Future Response Costs that Settling Defendant shall pay pursuant to Section XV (Payments for Response Costs).

XXIX. MODIFICATION

101. Except as provided in Paragraph 16 (Modification of SOW or Related Work Plans), material modifications to this Consent Decree, including the SOW, shall be in writing, signed by the

United States and Settling Defendant, and shall be effective upon approval by the Court. Except as provided in Paragraph 16, non-material modifications to this Consent Decree, including the SOW, shall be in writing and shall be effective when signed by duly authorized representatives of the United States and Settling Defendant. A modification to the SOW shall be considered material if it fundamentally alters the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(ii). Before providing its approval to any modification to the SOW, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification.

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

XXX. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

103. This Consent Decree shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations that indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendant consent to the entry of this Consent Decree without further notice.

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

XXXI. SIGNATORIES/SERVICE

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

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

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

XXXII. FINAL JUDGMENT

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

109. Upon entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States and Settling Defendant. The Court enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

XXXIII. TECHNICAL IMPRACTICABILITY

110. The Settling Defendant may petition EPA to waive compliance with one or more of the Performance Standards for ground water contaminants based on a demonstration that it is technically impracticable, from an engineering perspective, to attain those standards.

111. The determination of whether attainment of a particular Performance Standard is technically impracticable will be made by EPA, and will be based on the engineering feasibility and reliability of the remedy.

112. EPA will consider a petition for a waiver of Performance Standards on technical impracticability grounds only after the selected ground water remedy has been functioning and operational for a sufficiently long time period (longer than 3years) to make reliable predictions concerning its ability to achieve the Performance Standards. This determination will be made by EPA based on site-specific data and conditions. If the first petition is rejected, a subsequent petition will be considered by EPA only if EPA determines that it is based on significant new site-specific data which could not have been developed at the time the previous petition was submitted.

113. Neither the submission of a petition by Settling Defendant nor the granting of a waiver of one or more Performance Standards by EPA pursuant to this Section shall relieve Settling Defendant of its obligation to (i) continue to operate the ground water remedy until the time specified by EPA, (ii) attain Performance Standards for any contaminants for which EPA has not specifically granted a waiver, and (iii) complete any other obligation under this Consent Decree.

114. Such a petition shall include, at a minimum, the information and analyses required by EPA guidance and site-specific information as follows:

a. A list of each Performance Standard for which a waiver is sought, and the spatial limits for which they are sought. The justification for a waiver required by items (b) - (l) below must be made for each contaminant or class of contaminants for which a waiver is sought.

b. A description of known or suspected ground water contaminant sources at the site. The petition also shall describe source control and removal efforts that have been implemented and the effectiveness of those efforts.

c. Comprehensive ground water monitoring data and an evaluation of the ground water remedy implemented, along with any other remediation actions performed which enhanced or affected this remedy. The monitoring data and performance evaluation shall demonstrate, using an appropriate engineering and statistical analysis, that the ground water remedy has been operating for a sufficiently long period of time to permit a reliable analysis of its performance and its ability to achieve Performance Standards. The petition also shall demonstrate that the remedy has been designed, constructed, and operated in a manner which is consistent with the RD/RA Work Plan and the conceptual models for site contamination, and that the system has been modified or enhanced to the extent practicable to optimize its performance in an effort to attain the Performance Standards.

d. A description of the conceptual model for site contamination, including geologic, hydrogeologic, and geochemical characterizations. A description of the distribution; characteristics; migration, potential migration and fate; and quantities of contaminants present at the

site. These descriptions shall incorporate pertinent data obtained during the design, construction, and operation of the remedial system, as well as information obtained during previous site characterization efforts.

e. An analysis of the performance of the ground water remedy which describes the spatial and temporal trends in ground water contaminant concentrations within the ground water plume; for example, whether contaminant migration has been effectively prevented, whether there have been changes in the overall size or location of the ground water plume, and whether the concentrations of contaminants have been slowly decreasing. The petition shall discuss the hydrogeochemical factors which influence the remedy's ability to achieve the Performance Standards, and demonstrate how these factors inhibit the remedial system achieving the Performance Standards.

f. The mass of contaminants removed from the ground water by the remedial system, and an estimate of the mass of contaminants remaining, including the degree of uncertainty involved in this estimate.

g. A demonstration, including appropriate engineering analysis, that other conventional or innovative technologies which are potentially applicable at the site cannot attain the Performance Standards in a manner that is practicable from an engineering perspective. This demonstration should include a prediction of the level of cleanup other technologies can attain.

h. A predictive analysis of the approximate time frame required to achieve the Performance Standards with the existing ground water remedy, and any alternative remedial strategies, if applicable, using methods appropriate for the data and the site-specific conditions. Such analyses also should address the uncertainty inherent in these predictions.

i. For the implemented remedy and for any alternative remedial strategies proposed as part of this petition, identification of the potential pathways by which humans and the environment are or may become exposed to the contaminated ground water left in place. Contaminant concentration and other data needed for EPA to perform risk analyses shall be provided as part of the petition.

j. A description of the proposed alternative remedial strategy, or a comparison of two or more strategy options, proposed to be implemented by the Settling Defendant if a waiver is granted, and the level of cleanup and control of hazardous substances, pollutants, and contaminants the proposed alternative strategy or strategies will attain. Alternative remedial strategies must attain a level of cleanup and control of further releases which ensure protection of human health and the environment, and prevent further migration of contaminated ground water. Alternative remedial strategies may include the establishment of alternative Performance Standards, site-specific cleanup levels, and other alternative remediation requirements to ensure protectiveness. Proposed modifications to the existing remedy, and any additional response actions proposed to be undertaken, shall be described by the Settling Defendant in detail. EPA will make the final determination regarding the components of the alternative remedial strategy which shall be implemented at the site by the Settling Defendant.

k. A description of any additional ground water monitoring required to verify compliance with the alternative Performance Standards or remedial requirements. EPA will make the final determination regarding the scope of the ground water monitoring requirements under the alternative remedial strategy.

l. Other information or analyses not included above, but which Settling Defendant or EPA considers appropriate to making a determination on the petition.

115. Upon receipt of all information required by Paragraph 114, EPA will review and consider the information in the petition and any other relevant information. After opportunity for review and comment by the state, EPA will determine (1) whether compliance with any of the Performance Standards shall be waived; (2) what, if any, alternative remediation requirements, including alternative Performance Standards and other protective measures, will be established by EPA; (3) whether modifications to the ground water portion of the remedial action or any additional response actions relating to ground water contamination are required; and (4) whether revised interim milestone and completion dates are needed for attainment of Performance Standards or alternative Performance Standards under this consent decree. EPA's determination on the petition will be consistent with the National Contingency Plan ("NCP"), Section 121(d) of CERCLA, and any other applicable laws, regulations, and guidance in effect at the time.

116. If EPA, after a reasonable opportunity for review and comment by the State, grants any petition or other relief pursuant to this Section, that decision will be reflected in a post-ROD decision document, as required by the NCP. If modification of this Consent Decree or the SOW is required to implement EPA's decision, such modification will be filed and, if necessary, Court approval will be sought in accordance with Section XXIX of this Consent Decree (Modification).

117. Upon issuance of EPA's post-ROD decision document, filing of the revised SOW and Consent Decree with the Court, and if necessary, issuance of a court order approving the modification, Settling Defendant shall implement the modifications selected by EPA to the ground water portion of the remedial action or additional response actions relating to ground water contamination, and achieve and maintain all Performance Standards, alternative Performance Standards, and remediation requirements established pursuant to this Section. Unless expressly modified by EPA's decision on the petition submitted hereunder, all requirements of this Consent Decree, including Settling Defendant's obligation to achieve the alternative Performance Standards and to conduct long-term ground water monitoring, shall continue in force and effect.

SO ORDERED THIS 12th DAY OF June, 2015.

John M. Gerrard

United States District Judge

Signature Page for Consent Decree regarding the Former Nebraska Ordnance Superfund Site

FOR THE UNITED STATES OF AMERICA:

SAM HIRSCH
Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

12/30/2014
Date

//s// Frederick S. Phillips (under delegated authority)

FREDERICK S. PHILLIPS, Senior Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
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DEBORAH R. GILG
United States Attorney
District of Nebraska

12/30/2014
Date

//s// Laurie A. Kelly

By: s/Laurie A. Kelly
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Assistant United States Attorney, Mass. Bar
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FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

9-30-14
Date

Robert W. Jackson
Acting Division Director
Superfund Division
U.S. Environmental Protection Agency – Region VII
11201 Renner Blvd.
Lenexa, KS 66219

9-29-14
Date

James Stevens
Assistant Regional Counsel
U.S. Environmental Protection Agency - Region VII
11201 Renner Blvd.
Lenexa, KS 66219

Signature Page for Consent Decree regarding the Former Nebraska Ordnance Superfund Site

FOR THE BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA

September 26, 2014
Date

Name (print): James Linder, M.D.
Title: Interim President, University of Nebraska
Address: 3835 Holdrege Street, Lincoln, NE 68583

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

Name (print):
Title:
Address:
Phone:
email:

APPENDIX A

RECORD OF DECISION

FORMER NEBRASKA ORDNANCE PLANT SUPERFUND SITE

OPERABLE UNIT 5

MEAD, NEBRASKA

September 2013

Prepared by:

U.S. Environmental Protection Agency

Region 7

Lenexa, Kansas

Table of Contents

PART I: DECLARATION

SITE NAME AND LOCATION

The Former Nebraska Ordnance Plant site (Site), Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) identification number NE6211890011, is located in Saunders County, Nebraska, approximately one-half mile south of Mead, 30 miles west of Omaha and 35 miles northeast of Lincoln. The University of Nebraska Agricultural Research and Development Center (ARDC) occupies a portion of the Site. The Site is situated on approximately 27 square miles. The ARDC consists of approximately 9,660 acres (over 15 square miles). The ARDC is a major research and education facility of the University of Nebraska's Institute of Agricultural and Natural Resources. It serves as the primary site for field-based research involving approximately 90 faculty and 150 graduate students in nine Institute of Agricultural and Natural Resource departments.

In recognition of the various contaminants, media affected and potentially responsible parties, the Site was divided into several operable units (OUs). OUs 1, 2 and 3 are being addressed primarily by the U.S. Army Corps of Engineers (USACE); OU 5 is being addressed by the University of Nebraska (NU). The USACE had reserved the designation OU 4, which is not an active OU, for any potential unidentified future use.

OU 1 addressed the risk due to exposure to explosives-contaminated soil (upper four feet). A Record of Decision (ROD) for OU 1 was issued in November 1995, and the remedy was completed in 1997. OU 2 addresses the remediation of contaminated groundwater and soil contaminated with volatile organic and explosive compounds (exclusive of those addressed in OU 1) which may continue to be a source of groundwater contamination. The ROD for OU 2 was issued in April 1997 for containment and focused extraction and treatment of groundwater. The groundwater extraction system is currently operating at the Site.[1] OU 3 includes an assessment of a former on-site landfill and unidentified waste disposal area in addition to vapor intrusion and surface water contamination of areas that may not have been fully characterized for a final determination of any action that may be proposed. Contaminated soils were excavated in three areas as removal actions for OU 3 in 2008. The ROD for OU 3 was issued in May 2013 for no further action. As stated above, OU 4 is not active and is a designation reserved for unidentified future use.

This ROD addresses the final remedial response requirements for OU 5 of the Former Nebraska Ordnance Plant Superfund site.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedy for OU 5 of the Former Nebraska Ordnance Plant Site of Mead, Saunders County, Nebraska. The selected remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as

[1] The OU 2 ROD set the maximum contaminant level (MCL), as established under the Safe Drinking Water Act, as the cleanup goal for all contaminants in the groundwater such as trichloroethene (TCE) that have MCLs and set the health advisory limit as the cleanup level for the contaminants in the groundwater such as the explosive, Research Department Explosive (RDX), that do not have MCLs.

amended, 42 U.S.C. § 9601 *et seq.*, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR part 300. This decision is based on the Administrative Record for this Site.

The state of Nebraska concurs with the selected remedy.

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE SELECTED REMEDY

This ROD is anticipated to be the last ROD to be implemented at the Site.

A response action addressing OU 1 has been fully implemented. Removal actions at OU 3 have been performed to address contaminated soils. The OU 3 ROD was determined to be no further action. The OU 2 remedial action, which addresses four groundwater plumes at the Site, continues to contain and treat the contaminated groundwater. The OU 2 ROD also allows for the treatment of the contaminants in areas referred to as focused extraction of groundwater. These have been characterized as areas with higher levels of the contaminants of concern. Treatment of those areas can reduce the mass as well as the level of contaminants before reaching the principal extraction wells. The focused extraction of groundwater should reduce the length of time as well as the cost to clean up the entire Site. The contaminants being addressed include trichloroethene (TCE) and an explosive (RDX). The remedial actions for OU 2 will continue for some time due to the amount of contamination across the Site.[2]

The selected remedy for OU 5 will implement response actions at two locations, Load Line 1 and the ARDC Landfill. At Load Line 1, groundwater will be treated for 1,4-dioxane. At the ARDC Landfill, closure and post closure requirements in accordance with 40 CFR Part 258 and Nebraska Title 132 will be implemented. This includes enhancement and maintenance of the landfill cap, gas monitoring and long-term groundwater monitoring for the Nebraska Title 132 analytes. Groundwater will also be monitored for 1,4-dioxane. There are institutional controls (ICs) already in place at the ARDC that are incorporated into all alternatives as presented in the Proposed Plan of July 2011. The selected remedy at both locations for OU 5 will complement the response actions completed for OU 1 and those that continue to be implemented for OU 2.

The response actions that are associated with all operable units will have an aggregate impact on the entire Site area to ensure that the threats to human health and environment are addressed by the containment and treatment of contaminants that have an impact on a principal drinking water aquifer.

Load Line 1

Treatment of the groundwater at Load Line 1 will address the principal contaminant of concern, 1,4-dioxane, which will be cleaned up to a level of 6.1 micrograms per liter (ug/l). This remedy selection reflects the EPA's determination that no additional removal of soils is necessary at the burial area but a

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[2] See footnote 1.

[3] Referred to in the Proposed Plan as In Situ Biological Oxidation

response action is necessary for the groundwater, in addition to long-term monitoring of the groundwater (Alternative 1 No Action/Soil, Alternative 5 In Situ Chemical Oxidation[3] at Load Line 1 and Alternative 4 Long-term Monitoring of Groundwater.) The Non-Time-Critical Removal Action (NTCRA) completed at Load Line 1 in 2008 left an extremely small amount of soil above the action levels at the bottom of the area of excavation. The EPA determined that it would not be cost effective to excavate any deeper as the small mass of 1,4-dioxane remaining would very likely migrate to the groundwater where it can be addressed much more cost effectively.

The decision to treat the groundwater at the Load Line 1 area included both technical and risk management considerations that 1,4-dioxane has commingled with contaminants in the groundwater, such as TCE and RDX, in an aquifer that supplies both irrigation and drinking water in the local area. The contaminants are at levels which meet the criteria for concern about potential carcinogenic (cancer causing) hazards which could lead to adverse health effects. There are no close-by receptors (drinking water wells) immediately downgradient from the 1,4-dioxane mass, but the supplemental investigation completed by NU indicated the plume was following a subsurface channel within the aquifer which could allow for the 1,4-dioxane to be transported more rapidly downgradient. Samples collected by NU in December 2010 and January 2011 indicated the 1,4-dioxane plume was approximately 1,200 feet downgradient from the trenches. The area of higher concentration (greater than 50 ug/l) mass of 1,4-dioxane was approximately 250 feet downgradient from the trenches.

The treatment of the contaminated groundwater by in situ chemical oxidation will initially focus on the area of the plume that measured above 50 ug/l of 1,4-dioxane. A pilot study will be completed, and, if successful, will be followed by an expanded, full-scale treatment operation. If the pilot study determines that the remedy is not as effective as anticipated, then a different remedy will be considered that would be described in an Explanation of Significant Differences or a ROD amendment. The selected treatment method is intended to reduce the mass of 1,4-dioxane as well as the mass of TCE in the aquifer. The long-term monitoring network will measure the effectiveness of the treatment as well as monitor the containment of the 1,4-dioxane plume. Cleanup levels for TCE and RDX are intended to be achieved as part of the OU 2 remedial action being implemented by the USACE.[4]

ARDC Landfill

The selected remedy at the ARDC Landfill area is closure and post-closure to comply with 40 CFR Part 258 and Nebraska Title 132 (which includes enhancement of the cap, gas monitoring, and long term groundwater monitoring for the Nebraska Title 132 analytes. The groundwater will also be monitored for 1,4-dioxane. Based on comments received from the state of Nebraska, Alternative 9 in the Proposed Plan has been modified to identify the closure and post-closure requirements of Nebraska Title 132 rather than merely identifying select elements of closure and post-closure. This ROD names the remedy as: Alternative 9 (modified) Closure and Post-Closure of ARDC Landfill and Alternative 4 Long-term Groundwater Monitoring of 1,4-dioxane. Monitoring of 1,4-dioxane is included because there have been detections of 1,4-dioxane in the groundwater at the landfill which is attributable to the burial of materials from NU. Title 132 identifies a suite of analytes to be monitored during post-closure. Alternative 4 adds 1,4-dioxane to the suite.

[4] See footnote 1.

STATUTORY DETERMINATIONS

The selected remedy at each location is protective of human health and the environment in the short term and is intended to provide adequate protection in the long term, complies with those federal and state requirements that are applicable or relevant and appropriate for this action and is cost effective. This final action is intended to address fully the statutory mandate for permanence and treatment to the maximum extent practicable and uses permanent solutions and alternate treatment technologies to support the statutory mandate. This action constitutes the final remedy for OU 5 and fulfills the statutory preference for remedies that employ treatment to reduce toxicity, mobility or volume of hazardous substances, pollutants or contaminants as a principal element. Because this remedy will result in hazardous substances, pollutants or contaminants remaining on-site above health-based 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 the remedy is and will be protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of the ROD. Additional information can be found in the Administrative Record for the OU 5 Record of Decision.

Contaminants of Concern (COCs) and Their Respective Concentrations. The COCs for OU 5 that were discussed in the Proposed Plan of July 2011 were 1,4-dioxane, TCE and RDX. Based on the groundwater data from the supplemental remedial investigations (RI) completed in late 2010 and early 2011, the maximum concentrations from off-site, fixed laboratory analytical results for 1,4-dioxane, TCE and RDX were 230, 11,000 and 21.0 ug/l, respectively. The primary COC in this ROD is 1,4-dioxane attributable to NU's disposal of wastes into trenches. The TCE and RDX, which are commingled with 1,4-dioxane, will achieve their cleanup levels as part of the OU 2 remedial action. The groundwater containing all three contaminants will be monitored for post-treatment purposes.

Baseline Risk Represented by the COCs. A baseline risk assessment was conducted for OU 5 by the Environmental Health Unit of the Nebraska Department of Health and Human Services (NDHHS). The risk assessment team at the EPA Region 7 provided both review and comment during the completion of the human health risk assessment and the screening level ecological risk assessment. The human health risk, as determined by using the highest detected concentration of 1,4-dioxane at 230 ug/l, calculated the excess cancer risk to be approximately 3.8E-05. This value for 1,4-dioxane justifies the selection of treatment as a remedial action based on the NCP, which allows for remediation goals to use 1×10^{-6} as a point of departure for establishing preliminary remediation goals (PRGs). There is no applicable or relevant and appropriate requirement for 1,4-dioxane that establishes a cleanup level and there is no MCL that has been established under the Safe Drinking Water Act, but the EPA has classified 1,4-dioxane as a probable human carcinogen based on the risk it poses to human health. A regional risk-screening table gives a risk-based tap water screening value of 6.1 ug/l, and the Region has established 6.1 ug/l as a PRG. The 1,4-dioxane has commingled with TCE and RDX, which would allow for a cumulative risk to justify the consideration of treatment as a remedial action. The ecological risk assessment concluded that ecological risks were negligible.

Cleanup Levels Established for COCs and the Basis for These Levels. The cleanup levels were noted in the Proposed Plan of July 2011. As stated above, there is no MCL for 1,4-dioxane, but a PRG of 6.1 ug/l has been established with this ROD. The EPA has classified 1,4-dioxane as a B2 probable human

carcinogen; exposure to it may lead to adverse health effects. The cleanup levels for TCE and RDX in groundwater were established in the ROD for OU 2. The cleanup level for TCE is 5 ug/l, which is the MCL. No MCL has been established for RDX, but a lifetime health advisory of 2 ug/l has been set. TCE and RDX cleanup goals are intended to be reached through the implementation of the OU 2 ROD, but the mass of TCE is expected to be reduced through implementation of the groundwater portion of the OU 5 remedy as TCE is commingled with the 1,4-dioxane.

Source Materials. The areas where NU disposed of materials are considered source areas. They are Load Line 1, Load Line 2, the ARDC Landfill and the Sewage Treatment Plant Area. Three of the disposal areas were used to dispose of low-level radioactive waste generated by the University of Nebraska Medical Center. In general, NU wastes deposited at the disposal areas consisted of chemical wastes, radiological waste and biological tissue wastes. The NTCRA completed in 2008 removed the wastes deposited in the trenches. As addressed in the description of the selected remedy, the NTCRA at Load Line 1 area has been completed. The remaining areas that will be treated are those areas of highest concentration of 1,4-dioxane at Load Line 1. Monitoring of groundwater will be implemented for 1,4-dioxane at the Load Line 1 area. Monitoring of groundwater at the ARDC landfill will include 1,4-dioxane in addition to the parameters identified in Nebraska Title 132.

Current and Reasonably Anticipated Future Land Use. The EPA believes that the current and future land use at the areas of the ARDC and those at the south of the ARDC Landfill will remain unchanged. NU has indicated that the ARDC will remain an integral part of its program for both education and research. The area at Load Line 1 has historically been used for dairy operations. The EPA is aware that dairy program emphasis in using the ARDC has been recently changed. The area that will be affected by a pilot study and potentially expanded into a full-scale treatment operation as part of the selected remedy will, therefore, have less of an effect on the current use by NU. The area south of the ARDC Landfill is owned by private parties who are raising crops. Access will be needed to install and maintain the groundwater-monitoring program.

Current and Potential Groundwater Use. The Todd Valley Aquifer is affected by the contamination being released through historical operations at the former ordnance plant and disposal in areas by NU. The aquifer is used mainly for irrigation, but is interconnected with the Platte Valley Aquifer which is used for municipal water supplies and irrigation, and also has a number of private water well users. The investigations by the USACE over the years have identified private water well users who have been affected by the contaminants and are being provided whole-house treatment systems. In addition, the USACE is monitoring private wells located within a one-mile radius from the groundwater contamination. A consent decree entered in 2005 with NU, USACE and the EPA provides that NU obtain access to properties it owns and file notifications on property deeds on such property where restrictions for use of the land or water are appropriate. At this time, the current use of the groundwater is monitored and is expected to remain the same for the foreseeable future until response actions by the USACE and NU are complete.

Estimated Costs. The estimated costs of the selected remedy include a 15 percent contingency (from Appendix K, attachment to the Proposed Plan of July 2011) and are as follows:

- Alternative 5 — In Situ Chemical Oxidation at Load Line 1 and Alternative 4 Long-term Monitoring of Groundwater at both Load Line 1 and the ARDC Landfill: $2,548,194

- Alternative 9 (as modified)— Closure and post-closure of the landfill consistent with 40 CFR Part 258 and Nebraska Title 132: $2,798,640

Estimated Time. The response action at Load Line 1 is estimated to last two years once design is completed and the pilot test is implemented. The long-term monitoring at the landfill after closure is complete is scheduled to be 30 years, consistent with the state of Nebraska's regulations.

Key Factors that Led to Selecting the Remedy. The selected remedy

(1) reduces toxicity, mobility and volume of the contaminants,

(2) is a proven innovative technology,

(3) is cost effective,

(4) is readily implementable and

(5) allows further treatment to be evaluated quickly.

In addition to the above factors, the selected remedy at Load Line 1 includes the considerations that the concentrated mass of 1,4-dioxane is relatively small; the 1,4-dioxane is considered an emerging COC with limited treatment technologies available for in situ treatment and this remedy would allow in situ treatment to be implemented in a timely manner.

AUTHORIZING SIGNATURE

Cecilia Tapia, Director
Superfund Division
U.S. EPA, Region 7

Sept. 27, 2013
Date

PART II: DECISION SUMMARY

1.0 Site Name, Location and Description

Site Name:	Former Nebraska Ordnance Plant site, Operable Unit 5
Site Location:	Mead, Nebraska
CERCLIS ID:	NE6211890011
Operable Unit:	Operable Unit 5

The Former Nebraska Ordnance Plant Superfund site (Site) is located in Saunders County, Nebraska, approximately one-half mile south of Mead. Operable Unit 5 (OU 5) comprises most of the University of Nebraska Agricultural Research and Development Center (ARDC), which is approximately 9,660 acres (over 15 square miles). The ARDC is a major research and education facility providing field-based research for approximately 90 faculty and 150 graduate students in nine Institute of Agricultural and Natural Resource departments.

The Site originally was situated on 27 square miles and was used in World War II and the Korean Conflict to assemble bombs, shells and rockets from approximately 1941 to 1956. In 1959, an Atlas Missile Launch Area was built north of Load Line 4 and was active until 1964. The Site was eventually parceled off to other entities such as the Nebraska National Guard, the University of Nebraska (NU), the U.S. Army Reserves and other private individuals and corporations.

NU purchased its property in 1962, 1964 and 1971 for use as an agricultural research farm, which is now the ARDC. Some areas of the ARDC were used for disposal of various wastes, including laboratory wastes, paint wastes and research animal carcasses.

As a result of environmental investigations indicating soil and groundwater contamination at levels posing a threat to human health and the environment, the Site was added to the EPA National Priorities List (NPL) in 1990. In recognition of the various contaminants, media affected and potentially responsible parties (PRPs), the Site was divided into several OUs.

OUs 1, 2 and 3 are being addressed by the U.S. Army Corps of Engineers (USACE) on behalf of the U.S. Department of Defense (DOD). OU 1 addressed the risk due to explosives-contaminated soil (upper four feet); cleanup was completed in 1997 pursuant to an Interagency Agreement (IAG) that was entered into in 1991. OU 2, where work is ongoing, addresses the remediation of contaminated groundwater and soil contaminated with volatile organic and explosive compounds (exclusive of those addressed in OU 1) which may continue to be a source of groundwater contamination. The OU 2 ROD was issued in April 1997 for containment and focused extraction and treatment of groundwater. Two PRPs who had been contractors for DOD at the Site are completing a pilot test of an in-well treatment unit (IWTU) of an area of high levels of TCE south of the Load Line 1 area. It is anticipated that containment and treatment of the groundwater at the Site will continue for at least 50 years. The OU 3 Record of Decision was issued by the USACE in May 2013. Investigative work at OU 3 includes an assessment of a former on-site landfill and unidentified waste disposal area, in addition to vapor intrusion and surface water contamination of areas that may not have been fully characterized. The USACE reserved the designation OU 4, which is not an active OU, for any potential unidentified future use.

OU 5 addresses the soil and groundwater contamination due to NU's disposal of chemical wastes, low-level radioactive wastes and biological tissue wastes that were transported and placed in trenches during the late 1970s and into the 1980s. An Administrative Order on Consent (AOC) was signed in February 2005 between NU and the EPA for a remedial investigation/feasibility study (RI/FS) and removal actions to be completed at the ARDC under the oversight of the EPA and the Nebraska Department of Environmental Quality (NDEQ). The non-time-critical removal action (NTCRA) removed the buried wastes at locations at the ARDC. The NTCRA fieldwork was conducted from September 2007 to May 2008. The Removal Action Completion Report (RACR) was finalized in February 2009. The collection of data for the RI was completed in two phases that included three supplemental investigations. Phase 1 of the RI was conducted from December 2005 to February 2006. Phase 2 was conducted in May 2007. Supplemental investigations to Phase 2 were conducted April through May 2008, November 2010 and January 2011. The latest two investigations defined the extent of the 1,4-dioxane at Load Line 1. The Baseline Risk Assessment (BLRA) was completed in October 2010, and the final RI/FS Report was completed in April 2011.

NU implemented the NTCRA at OU 5 and removed the materials that were placed in trenches at the ARDC which were sources that contributed to the groundwater contamination. Through the RI, NU obtained information to evaluate the contaminants that were introduced to the environment from its actions as well as those already existing (since the contaminants have commingled in the groundwater) from the various DOD activities which occurred at the Site. This ROD provides the justification for the selection of the remedial action to be taken at the Load Line 1 area and the ARDC Landfill area relating to contamination attributable to NU.

Based on the sampling to date, which does not include the Title 132 post-closure groundwater sampling, the main contaminant of concern (COC) that was introduced by NU to the groundwater at both Load Line 1 and the ARDC Landfill that requires remediation is 1,4-dioxane. There is no MCL established under the Safe Drinking Water Act for this COC, so a preliminary remediation goal (PRG) of 6.1 ug/l is being used. The EPA has classified 1,4-dioxane as a Group B2 probable human carcinogen of low carcinogenic hazard; exposure to 1,4-dioxane may lead to adverse health effects. The 1,4-dioxane has commingled with the TCE and RDX in the groundwater. Chemical characteristics of TCE and 1,4-dioxane are similar, and thus, the treatment technology that is selected through this ROD for the 1,4-dioxane will reduce the mass of TCE while it is treating the 1,4-dioxane until it reaches its PRG of 6.1 micrograms per liter (ug/l). The groundwater treatment system in place for OU 2 will remediate the TCE, RDX and other OU 2 contaminants until their respective cleanup levels, identified in the OU 2 ROD, are reached.

2.0 Site History and Enforcement Activities

Site History

The Site was a load, assembler and pack facility which produced bombs, boosters and shells. The Site included four bomb load lines, a bomb booster assembly plant, an ammonium nitrate plant, two explosives burning areas, a proving range, a landfill, a wastewater treatment plant, analytical laboratories and storage and administrative facilities. Most of the raw materials used to manufacture the weapons were produced at other locations and shipped to the Site for assembly. However, ammonium nitrate was produced at the ammonium nitrate plant during the first months of operation. Finished munitions, bulk explosives and related ordnance materials and components were stored and demilitarized at the Site.

Routine plant operations included washout of explosive materials prior to bomb loading and assembly and bomb washing following assembly. Wash water was discharged into sumps and open ditches.

The production facilities were active during World War II (1942 to 1945) and again in 1950 for use in the Korean Conflict. The facility was placed on standby status in 1956 and declared excess in 1959.

The Offutt Air Force Base missile site S-1 launch area was built north of Load Line 4 and operated from 1959 to 1960. TCE was used to degrease and clean the pipelines that carried liquid oxygen fuel for missiles, and reportedly was discharged to surface drainage features. The missile facility was abandoned in 1964.

Areas of the Site have been used for training by the U.S. National Guard and U.S. Army Reserve as well as several commercial operations.

The ARDC has been used for field-based research and education. Several areas across the Site were used to dispose of NU wastes in trenches from the late 1970s into the 1980s as well as disposal of wastes at the ARDC Landfill from 1981 to 1993.

Numerous investigations have occurred at the Site and include an archives search by the U.S. Army's Toxic and Hazardous Materials Agency (now called the U.S. Army Environmental Command) in 1983; polychlorinated biphenyl (PCB) investigations by NU in 1984 and 1985; the EPA in 1988 and USACE in 1993; a soil, sediment, surface water and groundwater investigation by USACE in 1989; a shallow soil gas investigation in 1990; a soil investigation by USACE in 1991; an unexploded ordnance (UXO) survey and soil investigation by USACE in 1991; a preliminary health assessment by the Agency for Toxic Substances and Disease Registry (ATSDR) in 1991 and a Supplemental Soil RI for OU 1 by USACE in 1991.

The RIs for OUs 1, 2, 3 and 5 have been completed and have led to recommendations for response actions at OUs 1, 2 and 5. The various options for response actions were summarized and compared in the FS for each OU.

The ROD for OU 1 was issued in 1995 and the risks due to exposure to explosives-contaminated soil (upper 4 feet) were addressed. The OU 1 remedy was completed in 1997. The ROD for OU 2 was issued in April 1997 for containment and focused extraction and treatment of groundwater. Groundwater remediation is ongoing at OU 2. OU 2 also addresses soil contaminated with volatile organic and explosive compounds (exclusive of those addressed in OU 1). The reports that were used in the decision-making process supporting the RODs at OU 1 and OU 2 are available in the Administrative Record (AR) for each OU and are located at the Mead Public Library and the EPA Region 7 office. There is a ROD for OU 3, issued in May 2013, for no further action.

This ROD selects the final remedial action for OU 5. Analytical data collected through the Site investigations from both the NTCRA and the OU 5 RI/FS support the decision for a response action at both the Load Line 1 area and the ARDC Landfill. The levels of 1,4-dioxane were detected up to 230 ug/l in the groundwater at Load Line 1. The PRG for 1,4-dioxane is 6.1 ug/l, which was exceeded at both the Load Line 1 area and the ARDC Landfill.

Enforcement History

A solid waste disposal area license was issued for the ARDC Landfill by the then Nebraska Department of Environmental Control (NDEC) on March 26, 1981, and renewed on March 26, 1986, under Identification No. 0054216. An inspection by NDEC in December 1987 was completed and the violations noted were inadequate spreading, compaction and cover material; evidence of open burning; and inadequate control of trenches. The ARDC Landfill was officially closed May 1, 1993.

The Site was placed on the NPL in August 1990.

In September 1991, the USACE, the EPA and the now Nebraska Department of Environmental Quality (NDEQ) entered into an IAG to investigate and control environmental contamination at the Site.

In November 2002, the EPA sent a request for information under CERCLA section 104(e) to NU regarding operations and waste management at the ARDC Landfill.

In February 2005, an AOC between the EPA and NU went into effect for the completion of an NTCRA and an RI/FS at the ARDC Landfill for OU 5.

In September 2005, a consent decree was entered into between the United States (on behalf of the USACE and the EPA) and NU which required NU to pay response costs, provide Site access and implement ICs at the ARDC Landfill.

In October 2006, an AOC went into effect between the EPA and two PRPs, Dow Chemical and General Dynamics, for investigations relating to OU 2. These PRPs had been contractors for the DOD when the Nebraska Ordnance Plant operated. An Amendment to the AOC was signed in October 2010 to implement a focused extraction pilot test at OU 2 in the Load Line 1 area.

In 2011 and 2012, the EPA sent requests for information under CERCLA section 104(e) to NU requesting verification of what NU disposed of at the Site and updated financial information.

3.0 Community Participation

A Community Relations Plan (CRP) for the Site was prepared by the USACE and approved by the EPA and NDEQ in May 1992. As the Site work has progressed, the CRP continues to be reviewed and adjusted as needed.

Community participation was provided in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA). This included the availability of several key documents in an AR at a local repository, public comment periods and public availability sessions where the EPA and the USACE were able to meet with members of the public and respond to questions regarding the Site. Public meetings were held at the ARDC in July 1989 and June 1990, where the EPA and the USACE discussed progress of the ongoing studies and provided the community an opportunity to voice their concerns and offer comments.

Prior to issuance of the RODs for OUs 1, 2 and 3, the Proposed Plans and comment periods had been announced in the local newspapers and were placed in the AR at the public library located in Ashland, Nebraska, as well as the USACE District Office in Kansas City, Missouri. The AR is now located at the Mead Public Library in Mead, Nebraska. Public meetings were held at the ARDC to present the

Proposed Plans, answer questions of the public and take comments that would be considered and addressed in the final ROD. Those comments are addressed in the Responsiveness Summary of the RODs.

A Restoration Advisory Board (RAB) was established by the USACE which provided a forum for discussion of the overall cleanup project. The RAB has a Co-Chairperson, the USACE Project Manager, and a Community Co-Chairperson. The RAB remained active until 2007 when issues concerning the rules of order at the meetings could not be agreed upon. The RAB has remained inactive pending resolution of those issues.

Quarterly open house meetings are now held and representatives of the USACE, NDEQ and the EPA are present from 4:00 p.m. to 8:00 p.m. to discuss Site issues, provide updates to Site activities and answer questions. At present, the open house is held at the Yutan VFW facility in Yutan, Nebraska.

The USACE has provided a Site bus tour once a year to provide the public an update on the activities and the progress of the cleanup response actions. This bus tour has been provided as part of the regularly scheduled open house held in July.

The USACE maintains a website for the Site and also sends quarterly fact sheets or newsletters of progress at the Site to members of the community and elected officials.

In 2006, as part of the response actions required by the AOC for OU 5, the removal site evaluation and engineering evaluation/cost analysis (EE/CA) was completed and a 30-day public comment period was initiated on November 7, 2006. A public meeting was held at the Research and Education Building at the ARDC to discuss the EE/CA and the EPA's proposed removal alternative.

The Proposed Plan and comment period (July 1, 2011, through August 1, 2011) for OU 5 was announced in the Wahoo, Nebraska, newspaper. A public meeting was held on July 13, 2011, at the Research and Education Building at the ARDC from 7:00 p.m. to 9:00 p.m. A presentation was made concerning the investigations, removal action and the proposed plan for remediation at OU 5. The presentations and any public comments at the meeting were recorded by a court reporter and the transcript placed in the Administrative Record for this ROD. Response to comments received during the public- comment period are in the Responsiveness Summary of the ROD.

4.0 Scope and Role of the Operable Unit and Response Action

In recognition of the various contaminants, media affected and potentially responsible parties, the Site was divided into several OUs:

OU 1: Pursuant to the IAG, the USACE has had the lead in performing work with the EPA and NDEQ (formerly NDEC) performing oversight. This OU addressed the risk due to exposure to explosives-contaminated soil (upper four feet). The remedial actions selected in the OU 1 ROD have been implemented and cleanup is complete.

OU 2: Pursuant to the IAG, the USACE has the lead in performing work with the EPA and NDEQ performing oversight. Two other PRPs also perform work under the EPA oversight. This OU addresses the remediation of contaminated groundwater and soil contaminated with volatile organic and explosive compounds (exclusive of those addressed in OU 1) which may continue to be a source of groundwater

contamination. The ROD for OU 2 was issued in April 1997 for containment and focused extraction and treatment of groundwater. This remedial action is currently being implemented and will continue for some time. The ongoing groundwater remediation identifies, among other contaminants, TCE and RDX, two of the contaminants found to be commingled with 1,4-dioxane at OU 5. The treatment system at OU 2 is designed to capture those contaminants and will operate until cleanup levels are achieved. The USACE continues to look at areas of high concentrations of COCs at OU 2 to determine whether focused extraction or in situ treatment could reduce the time to meet the remediation goals at the Site. OU 2 will be the long-term focus at the Site.

OU 3: Pursuant to the IAG, the USACE has the lead in performing work with the EPA and NDEQ performing oversight. The USACE conducted an extensive assessment of a former on-Site landfill and unidentified waste disposal area, sampled soils, surface water and buildings overlying the TCE plumes for vapor intrusion, and conducted removal actions where it excavated contaminated soils from three areas. The Proposed Plan was published for public comment from October 25 through November 24, 2012. A ROD was issued in 2013 for no further action.

OU 4: This is not active and was only reserved for potential unidentified future use.

OU 5: The EPA has the lead and oversees work by NU. This OU addresses the contamination attributable to NU's activities at the Site and is the subject of this ROD. The selected remedy addresses treatment of contaminated groundwater at the Load Line 1 area as well as the closure and post-closure of the permitted landfill under state requirements with long-term monitoring of groundwater at both locations. The response actions at OU 5 that will be implemented are consistent with the overall response plan for the Site.

The overall Site management plan continues to be adjusted as the progress at the OUs is monitored.

5.0 Site Characteristics

The Conceptual Site Model (CSM) as it relates to this ROD will be briefly described in this section and is supported by the AR for OU 5 and additional ARs and Site information published by the USACE.

The Site is approximately 16,000 acres. The ARDC portion that is owned and operated by NU is approximately 9,660 acres.

Contamination of soils and groundwater has resulted from the activities of the ordnance plant and at the ARDC. These activities have been documented in the RI/FS for the various OUs as described above. The response actions selected have resulted in a CSM to ensure that human exposure to the COCs is prevented and the ecological impacts are minimal and controlled.

The principal COCs (a total of seven were included in the ROD for OU 2) that are being addressed by response actions of the USACE and other PRPs are TCE (a volatile organic contaminant) and RDX (an explosive contaminant). Several types of waste, including low-level radioactive solid wastes, were discussed in the EE/CA and addressed by NU through the NTCRA; the COC addressed in this ROD for OU 5 is 1,4-dioxane. The studies and monitoring have shown that the contaminants from the former activities at the Site have reached the groundwater aquifers that supply both irrigation and drinking water to the region.

The response actions completed under OU 1 and the NTCRAs under OU 5 have addressed contamination in both the surface and buried source areas. The removal actions for OU 3 have addressed contaminated soils. (The ROD for OU 3 was for no further action, based on risk analysis.) The ROD for OU 2 provides for the treatment of any additional areas that are considered either sources or have higher concentrations that need to be addressed for the long-term remedial goal of reducing the levels of contamination in the groundwater. This ROD for OU 5 will address groundwater at Load Line 1 and closure (capping) and post-closure (cap maintenance, landfill gas monitoring and groundwater monitoring) of the ARDC Landfill area under the state of Nebraska Title 132 Regulations.

The Site has a rolling topography with elevations ranging from 1,105 feet above mean sea level in the southwest corner to 1,210 feet in the northeast corner. The principal land use is agricultural and used by the ARDC as well as individual farmers. Approximately 40 percent of the row crops are irrigated from groundwater sources.

The climate of Saunders County is subjected to cold northerly winds in the winters and hot southerly winds in the summer. April and September are the wettest months, with annual precipitation averaging 28 inches per year. An average snowfall of 31 inches occurs annually, with January exhibiting the coldest temperatures (average low temperature of 13 degrees Fahrenheit). An average high temperature of 88 degrees occurs in July.

The geologic strata characterizing the ARDC across OU 5 consists of bedrock shales and sandstones of Cretaceous age, overlain by unconsolidated deposits of Pleistocene sands and gravels and surficial loess. The unconsolidated deposits range in thickness from 45 to 150 feet.

The Peoria Loess, which is composed of clayey silt to silty clay, mantles the Site and ranges in thickness from 2 to 25 feet. The underlying Pleistocene sands and gravels are glaciofluvial and fluvial deposits and consist of two distinctive stratigraphic layers, the upper Todd Valley Fine Sand Unit and the lower Todd Valley Sand and Gravel Unit.

The depth to bedrock ranges from 20 feet below ground surface in the Burial Site A (eastern part of the ARDC) to 150 below ground surface at Load Line 1 (western part of the ARDC).

The principal aquifer across most of the Site is the Todd Valley Aquifer. The water-bearing portion of the aquifer ranges from 30 feet thick in the southeast to over 100 feet thick near Load Line 1. This aquifer is used mainly for irrigation but is interconnected with the Platte Valley Aquifer to the east. The Platte Valley Aquifer consists mainly of sediments deposited by the modern Platte River. Sediments are typically less than 50 feet thick in the vicinity of the Site and consist of sands and gravels beneath approximately 5 to 15 feet of silts and clays. Groundwater is close to the surface and many farm fields require drain tiles to keep groundwater from discharging to the surface. This aquifer is used for municipal water supplies and irrigation.

5.1 Nature and Extent of Contamination

The nature and extent of contamination of the groundwater as part of OU 2 has been characterized and will continue to be monitored by the USACE. There are four large groundwater plumes associated with the past operations of the four load lines and missile site. As previously mentioned, there are seven COCs listed in the ROD for OU 2 with the principal two being TCE and RDX. The areal extent and limits of these plumes are illustrated on report figures defined by the isoconcentration lines representing cleanup goals of 5.0 ug/l for TCE and 2.0 ug/l for RDX.

The plumes are contained by extraction wells that deliver the contaminated water to the four treatment plants where the contaminants are treated to below the cleanup goals. The treated water is then either discharged to surface streams or used for irrigation during the crop-growing season. There are several private well users on the east side of the Site who had whole-house treatment systems installed and maintained by the USACE to prevent the exposure to contaminated groundwater above the cleanup goals.

The USACE continues to investigate the Site for additional areas of high concentration and mass of contamination. It will then determine the possibility of focused treatment systems to reduce both concentration and mass of contaminants which would be cost effective and reduce the total time to reach the cleanup goals. At this time, the USACE is implementing a pilot treatment test at Load Line 2 and two other PRPs are completing a pilot treatment test at Load Line 1 at areas of high concentration of the contaminants.

NU completed an NTCRA at OU 5 pursuant to an AOC that became effective in February 2005. An Enforcement Action Memorandum was signed in March 2007. The memorandum defined the areas of removal based on the information from the first phase of the RI and the EE/CA. The RACR, February 2009, documents the removal actions that were completed.

The NTCRA was divided into three groups. The first group of disposal trenches at Load Line 1, Load Line 2 and Burial Site D are referred to as the Low Level Radioactive Waste (LLRW) sites.
The second group is the disposal site at the North Proving Ground (NPG), referred to as Burial Site A.
The third group, referred to in the Removal Action Work Plan as contingent removal sites, consists of geophysical anomalies identified during the Phase One RI. The removal goals (RGs) were established and NU, in compliance with a Nuclear Regulatory Commission Materials License, removed the materials classified below with their total amounts of each classification:

Non-hazardous/nonradioactive soil less than RGs:	4,240 cubic yards
Special waste:	4,343,500 pounds
Hazardous/nonradioactive waste:	28,581 pounds
Low-level radioactive waste:	126,547 pounds

The RACR provides a detailed description of removal activities and the disposition of materials that were removed. NU, the EPA and NDHSS cooperated to determine the extent of removal necessary to meet the removal goals and to adjust the next phase of RI to determine the impact on the groundwater at those areas.

The results of the RI as documented in the April 2011 RI/FS Report provided the information to determine the impact of the NTCRA on the soils and groundwater at OU 5. The removal action appeared to be successful in removing the source materials that were disposed of by NU at the ARDC in the late 1970s and into the 1980s. The remnant detection of 1,4-dioxane at the lowest level of excavation in the Load Line 1 area remained since it would not have been cost effective to reconfigure the excavation plan to excavate to a greater depth in a safe manner. The phased RI through 2008 provided the majority of the information to characterize the OU 5 area and provide adequate data for the Baseline Risk Assessment. The supplemental investigations in December and January of 2010 and 2011, respectively, provided the information to determine the extent of the 1,4-dioxane at the Load Line 1 area as well as provided additional information to determine the remedial alternatives.

NU worked closely with the NDHSS and the EPA to determine that radioactive wastes as well as other medical wastes were adequately characterized and the information needed for the risk assessment was obtained for both soils and groundwater.

The resulting nature and extent of contamination at OU 5 has been determined by the EPA to justify consideration of treatment of 1,4-dioxane. The 1,4-dioxane has commingled with other contaminants in the groundwater at Load Line 1, namely, TCE and RDX, which will be addressed through the OU 2 remedial action. There is a detection of 1,4-dioxane at the ARDC Landfill indicating an extremely small area of the groundwater that has been affected by waste disposal in that area.

The available information supplied by NU indicates that 1,4-dioxane was in the scintillation fluids that were part of the wastes that were disposed of at the burial locations. Previously, 1,4-dioxane has been used as a stabilizer and corrosion inhibitor in a number of solvents, particularly for the solvent 1,1,1-trichloroethane. Investigations of sites nationwide have found that 1,4-dioxane does not degrade in the subsurface, readily mixes in water and often moves along an aquifer ahead of the product that it had been used to stabilize. Treatment technologies to reduce and destroy the 1,4-dioxane while it is in subsurface media are still being developed. It is referred to as an emerging COC as information on its characteristics in subsurface media continues to be gathered.

The EPA has classified 1,4-dioxane as a Group B2 probable human carcinogen (cancer causing) of low carcinogenic hazard; exposure to 1,4-dioxane may lead to adverse health effects. The classification and the levels that were detected in the groundwater aquifer have allowed the EPA to determine that consideration of treatment is justified. The Baseline Risk Assessment was completed by the NDHHS. The EPA Region 7 risk assessment team provided assistance during the drafting of the report for both human health and ecological risk assessment.

The EPA has selected the alternative to treat the 1,4-dioxane in the groundwater at Load Line 1 in consideration of the following:

1. The risk level of 1,4-dioxane in the groundwater aquifer, in addition to the combined risk when combined with TCE and RDX, allows for consideration of treatment to reduce the volume and toxicity of the contaminant that is in an aquifer used for irrigation and connected to a drinking water aquifer.

2. The supplemental investigations completed in December 2010 and January 2011 indicate that the bulk mass of the 1,4-dioxane appears to be somewhat small in area and has not moved very far from the source area of the disposal trenches. This allows for the pilot treatability test for in situ chemical oxidation, (as discussed in the July 2011 Proposed Plan) to be implemented, and, if successful, expanded to treat the bulk of the plume.

3. Treating 1,4-dioxane, while it is confined to a smaller area before it has a potential to migrate downgradient, is cost effective.

4. NDEQ and the public support the decision based on the comments received to the July 2011 Proposed Plan.

6.0 Current and Potential Future Land and Resource Uses

The current and potential future land use and resource (groundwater) use appears to be similar. The USACE obtains information from NU, the local natural resources district (NRD), the Metropolitan Utilities District (MUD), as to any land use changes, (for example, new construction) for input into its groundwater model. Data is shared with those agencies and a pumping rate of extraction is maintained to be able to contain and capture the contamination and to balance the impact on the use of the groundwater for irrigation and drinking water purposes.

The long-term goal of OU 2 that the USACE has established is for the beneficial reuse of the groundwater aquifer for all uses including drinking water.

The same goal is established for OU 5 by treating the plume at the Load Line 1 area to reduce the impact of the contaminants on the groundwater aquifer. The closure of the ARDC Landfill will reduce the potential for infiltration of water from rainfall and runoff through the materials in the landfill. The groundwater monitoring wells will provide data to determine the success of the response actions.

The ARDC has indicated that its long-term goal to use the facility as it does now is consistent with the use of adjacent areas by the Nebraska National Guard and private owners who are downgradient of the contaminated groundwater.

There are ICs in place within the Site so that current and potential users of the groundwater are aware of the Site conditions. The USACE produces a quarterly newsletter sent to all stakeholders as well other interested parties including congressional representatives. Additional signs and use restrictions may be implemented at OU 5 to advise the public that there may be residual soil contamination at Load Line 1 and to ensure that wells are not drilled into groundwater at Load Line 1 and the ARDC Landfill.

7.0 Summary of Site Risks

This section will briefly summarize the assessment conducted for OU 5 and provides support for taking action under the risk management decision that the EPA has made. It provides a basis for taking action and identifies the contaminants and exposure pathways that were considered for making the decision for remedial action.

The basis for taking action at OU 5 for groundwater at Load Line 1 is that the principal COC, 1,4-dioxane, is present in the aquifer at levels substantially above the regional PRG of 6.1 ug/l. This poses the potential for long-term health risks if the groundwater were to reach receptors (households) who would use the groundwater for drinking and other household uses. Additionally, the contaminated water could pose a potential for vapor intrusion into homes.

NDHHS, in cooperation with the EPA Region 7 risk assessment team, finalized the Baseline Human Health Risk Assessment (BLHHRA) and the Screening Level Ecological Risk Assessment. This document, dated October 2010, is part of the RI and included in the AR.

The scope and organization of the BLHHRA follows the EPA's Risk Assessment Guidelines for Superfund. The organization of the report first summarizes Site data for chemical contaminants in soil and water and identifies those that could be a potential concern for human health. An exposure assessment, toxicity assessment and risk characterization of the chemicals of potential concern in both

the soil and groundwater of the Site are completed for both excessive carcinogenic effects and adverse noncarcinogenic effects. The uncertainties discussed must be considered in the risk management decision making process in addition to the other evaluation criteria that the EPA considers in the decision making process.

The BLHHRA considered the pathways for the potential COCs using the exposure pathways for current and future human exposures to groundwater, indoor air and soils. The NTCRA that was completed at the Site has eliminated the pathway for any direct exposure to the materials that NU transported and placed at the various locations at the ARDC. The excavation at Load Line 1 removed materials to approximately 20 feet below the ground surface. Sampling at the lowest level of excavation indicated an area just above the removal goal (RG) established for 1,4-dioxane. During the excavation, the levels of 1,4-dioxane had been substantially decreasing below 12 feet in depth. The EPA determined that the levels and the small amount of material remaining at the 20-foot-depth level would not make it cost effective to proceed deeper with the excavation. The method of excavation (benching, etc. which would have required a substantial amount of additional material to be removed to enable a safe method of extending the excavation deeper) would have increased costs substantially.

The risk calculations and tables of the specific chemicals and pathways are set forth in the BLHHRA. The EPA risk assessment team reviewed and commented extensively to ensure the document would be transparent and clear enough to enable a reader to understand the potential risks at the Site. The risk assessment states that all excess cancer risks were found to be in the 1×10^{-6} to 1×10^{-4} risk range when considering both adult and children exposure scenarios for combined ingestion and dermal estimates for use of groundwater. The EPA risk team calculation of excess cancer risk of 1,4-dioxane in the groundwater at 58 ug/l was approximately 1×10^{-5} and at 230 ug/l was 3.8×10^{-5}. These values fall within the range that allow for the EPA to consider treatment and use 1×10^{-6} as a point of departure for establishing PRGs. An aggregate or total risk would be somewhat higher if TCE and RDX were included. Since TCE and RDX are being remediated through the OU 2 remedial action, only the treatment addressing 1,4-dioxane was considered.

The BLHHRA considered the fact that the contaminated groundwater aquifer at Load Line 1 is primarily used for irrigation and is hydraulically connected to an aquifer to the east that is used for both irrigation and drinking water. There are no receptors of the contaminated groundwater in the immediate area of the 1,4-dioxane plume. The 1,4-dioxane was in the scintillation fluids that were part of the wastes disposed of at the burial locations. The 1,4-dioxane has been used as a stabilizer and corrosion inhibitor in a number of solvents. Investigations nationwide indicate it does not degrade in the subsurface, is miscible (readily mixes) in water and often moves ahead of the product that it had been used to stabilize. Treatment technologies to reduce and destroy the 1,4-dioxane while it is in the subsurface media are still being developed. It is referred to as an emerging COC, and has been classified as a Group B2 probable human carcinogen of low carcinogenic hazard and may lead to adverse health effects.

There are existing technologies that industry has used to treat 1,4-dioxane when it is contained in aboveground facilities or systems such as the Advanced Oxidation Plant (AOP) operated by the USACE. Consideration of all contaminants in the groundwater needs to be addressed when it is extracted and treated due to discharge locations and requirements for that discharge system to maintain compliance with applicable or relevant and appropriate requirements (ARARs) as listed in the figures and tables of this ROD.

A Screening Level Ecological Risk Assessment (SLERA) was completed by NDHHS and reviewed by the EPA risk assessment team. In 1993, an ecological risk assessment was completed for the Site. This assessment concluded that Site soils would not pose a hazard to the environment. In 1997, an assessment of the aquatic habitats on the Site was performed. It concluded that concentrations of the potential COCs measured in the substrate from the NRD Reservoir are consistent with those of local soils and several factors limit the capacity of the reservoir to support diverse or abundant aquatic life.

The SLERA assessed risk at three areas of concern: Load Line 4; the Pesticide Rinsate Area and the former ARDC Landfill. The risk calculations in the SLERA concluded that no significant ecological risks were associated with the Site.

8.0 Remedial Action Objectives

Section 121(b) of CERCLA requires the selection of remedial actions attain a degree of cleanup that ensures protection of human health and the environment, is cost effective, and uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

The following remedial action objectives (RAOs) have been developed for soils at OU 5:

- For protection of human health — prevent exposure to soils with contaminant concentrations which result in an excess cancer risk greater than 1×10^{-6} or a hazard quotient greater than 1.0, whichever is less.

- For protection of the environment — reduce the soil contaminant levels to prevent migration of the 1,4-dioxane and other contaminants from soils to groundwater.

The following RAOs were developed for groundwater at OU 5:

- For protection of human health — prevent exposure to groundwater with contaminant levels greater than the MCLs, and for those contaminants without established MCLs, prevent exposure to groundwater with contaminant concentrations greater than the PRG or the lifetime health advisory. The intermingling of the 1,4-dioxane with the TCE and the RDX results in a case with multiple contaminants and allows for the 1×10^{-6} risk level to be used as a point of departure for determining remediation goals.

- For protection of the environment — minimize further degradation of the local drinking water aquifer by the contaminants.

- To address the remedial action objectives (RAOs) in the selection of the remedial alternatives, which are designed to restore the groundwater aquifer to drinking water levels and to prevent additional contamination from reaching the groundwater, the chemical-specific, location-specific and action-specific ARARs were used as listed in Tables 6.1, 6.2 and 6.3 of the RI/FS for OU 5. The NDEQ requested some clarification to the tables in the RI/FS. Those clarifications were made and are now included as the tables designated 6.1, 6.2 and 6.3 attached to this ROD.

The RAOs and ARARs, as stated above, were considered when reviewing the comments and developing the decision that this ROD documents.

The cleanup goal for 1,4-dioxane will be the PRG of 6.1 ug/l as determined by the EPA risk assessment team. The cleanup goal established for TCE and RDX by the ROD for OU 2 will be achieved through the OU 2 remedial action which the USACE is implementing. However, the OU 5 action will reduce the concentration and mass of the TCE due to the chemical similarity between 1,4-dioxane and TCE.

9.0 Description of Remedial Alternatives

A Summary of Remedial Alternatives was presented in the Proposed Plan of July 2011, based on the description of the alternatives that were set forth in the FS for OU 5. The Proposed Plan designated each alternative with a number which is also used in this ROD, along with additional description for clarification of the remedial alternatives. Two areas in OU 5 will be addressed through this ROD: Load Line 1 and the ARDC Landfill.

Alternative 1 — No Action/Soil

This alternative at Load Line 1 removal area would not involve any remedial actions with the exception of existing ICs at the ARDC. The small amount, if any, of contaminated soil below 20 feet in depth is not anticipated to release contamination to the groundwater. The area would remain in its present condition. This alternative is required by the NCP and CERCLA to be used as a baseline alternative against which effectiveness of other alternatives can be compared.

Alternative 2 — Removal of Soil for Treatment or Disposal/Load Line 1 Removal Area

This alternative would remove any 1,4-dioxane contaminated soil below the depth of 20 feet that was not removed during the prior removal action to an estimated depth of 40 feet. The existing ICs at the ARDC would remain in place. This alternative would remove any remaining 1,4-dioxane contaminated soil which could be a source of groundwater contamination.

Alternative 3 — No Action/Groundwater

This alternative would not involve any remedial actions at either Load Line 1 or the ARDC Landfill areas of the contaminated groundwater with the exception of the existing ICs at the ARDC. It is anticipated that the contaminants at Load Line 1 area would migrate but dissipate and disperse and the concentrations would be gradually reduced. Any contamination that may eventually reach the USACE's focused extraction well EW-11 would be treated at the Advanced Oxidation Plant operated by the USACE. The area would remain in its present condition. This alternative is required by the NCP and CERCLA and is a baseline alternative against which effectiveness of other alternatives can be compared.

Alternative 4 — Long-term Monitoring of Groundwater

This alternative is the Long-term Monitoring of Groundwater as listed in Table 6.5 and Table K-5. This alternative would involve monitoring groundwater wells using both existing and new monitoring wells at Load Line 1 and the ARDC Landfill for an estimated period of seven years with a goal to demonstrate stable or decreasing plume concentrations and no further migration of the 1,4-dioxane. It is anticipated that the contaminant would migrate but dissipate and disperse, and thus, the concentration would be gradually reduced. The existing ICs at the ARDC would remain in place.

Alternative 5 — In Situ Chemical Oxidation

This alternative is the in situ chemical oxidation (ISCO) aerobic aquifer and Fenton's (Bio Option) as listed in Table 6.5 and Table K-6 of the FS. This alternative would focus on the area of the plume above 50 ug/l of 1,4-dioxane. A pilot study would be implemented to determine the aquifer conditions and spacing of injection points. Figure 6.5 of the FS displays the proposed location of the injection area. Long-term monitoring would be implemented to ensure that continual biodegradation of the contaminant is occurring in the portion of the plume not remediated. The existing ICs at the ARDC would remain in place.

Alternate 6 — In Situ Chemical Oxidation by Ozone Sparging

This alternative is the Ozone Sparging (Chemical Option) as listed in Table 6.5 and Table K-7 of the FS. This alternative would focus on the area of the plume above 50 ug/l of 1,4-dioxane. A pilot study would be implemented to determine the effectiveness of the method followed by a full-scale operation based on the outcome of the pilot. Figure 6.6 of the FS displays the proposed location of the area. Long-term monitoring would be implemented to ensure the effectiveness of the method in addressing the portion of the plume contaminated with 1,4-dioxane. The existing ICs at the ARDC would remain in place.

Alternate 7 — Ex Situ Granular Activated Carbon (GAC)

This alternative is the Pump and Treat GAC as listed in Table 6.5 and Table K-8 of the FS. This alternative would focus on the area of the plume above 50 ug/l of 1,4-dioxane. A pilot study would be implemented to determine the effectiveness of the method followed by a full-scale operation based on the outcome of the pilot. Figure 6.7 of the FS displays the proposed location of the alternative. The FS states that this method is not as effective or efficient as other methods and the treated water would have to be disposed of through a permitted surface water discharge permit or transported to a permitted wastewater treatment plant. Long-term monitoring of the portions of the plume not remediated is not included in the description (Sections 6.6 and 6.7) or in Table K-8 of the cost summary of the FS. The existing ICs at the ARDC would remain in place.

Alternative 8 — Ex Situ UV Oxidation

This alternative is the Pump and Treat UV as listed in Table 6.5 and Table K-9 of the FS. This alternative would focus on the area of the plume above 50 ug/l of 1,4-dioxane. A pilot study would be implemented to determine the effectiveness of the method followed by a full-scale operation based on the outcome of the pilot. Figure 6.7 of the FS displays the proposed location of the alternative. The FS states that this method is one of the successful methods in the literature for treating 1,4-dioxane. The treated water would have to be disposed of through a permitted surface water discharge permit or transported to a permitted wastewater treatment plant. Long-term monitoring of the portion of the plume not remediated is not included in the description (Sections 6.6 and 6.7) or in Table K-8 of the cost summary of the FS. The existing ICs at the ARDC would remain in place.

Alternative 9 (modified) — Closure and Post Closure of ARDC Landfill

This alternative is derived from Table 6.4 under the ARDC Landfill Closure and in Table K-11 of the FS and refers to the closure and post-closure requirements under 40 CFR Part 258 Subpart E, F and G and Nebraska Title 132 – Integrated Solid Waste Management Regulations, Chapters 3, 5, 6, 7 and 8, which includes enhancement of the existing landfill cover, maintenance of the cover, landfill gas monitoring, groundwater monitoring for the Title 132 analytes and financial assurance. The existing ICs at the ARDC would remain in place.

Alternative 10 — Removal and Off-Site Disposal of Landfill Wastes

This alternative is listed in Table 6.4 under the ARDC Landfill Closure and in Table K-12 of the FS. This alternative would remove landfill wastes and transport the wastes to an approved off-site location(s). Post removal would include covering the area with topsoil, seeding and post-closure groundwater monitoring. The existing ICs at the ARDC would remain in place.

Alternatives Considered for Soil at Load Line 1 Area:

The NTCRA was successful in removing the wastes that had been transported and buried at several areas of the ARDC although an extremely small amount of soil with 1,4-dioxane was left at the burial area. This remaining material at the lowest area of excavation at Load Line 1 area was likely remnant contamination due to the pathway taken by the percolation of water through the buried wastes as it migrated to the groundwater. During that NTCRA, the EPA, NU, NDEQ and NDHHS determined that waste materials had been successfully removed to meet the removal criteria with the exception of the Load Line 1 area. The decision to stop the excavation was based on the decreasing concentration of 1,4-dioxane as the excavation was advanced below 12 feet in depth. The decision to suspend the excavation at a depth of 20 feet was made after the results indicated the concentration at the lowest level was slightly above the removal action level, the amount of contamination that would be left was extremely small and would contribute very little additional contamination to the groundwater and the cost to reconfigure the method of excavation to be able to continue deeper in a safe manner would be substantial. The actions to be considered for soil are Alternatives 1 and 2.

The burial of NU wastes contributed the compound 1,4-dioxane as a contaminant to the groundwater aquifer. The 1,4-dioxane did commingle with the existing contaminated groundwater whose main contaminants are TCE and RDX. The actions to be considered for the groundwater are Alternatives 3, 4, 5, 6, 7 and 8.

Load Line 1 - Other Issues Considered:

The 1,4-dioxane plume at Load Line 1 area appears to be following a subsurface channel within the aquifer toward the USACE focused extraction well (EW-11). EW-11 is in an area of elevated levels of TCE (above 10,000 ug/l). The discharge from EW-11 is transferred through a pipeline to the AOP, which is one of the four treatment plants operated by the USACE. The AOP can reduce the higher levels of TCE more efficiently than the technologies used in the other plants. The type of treatment technology used in the AOP has been proven to treat and remediate 1,4-dioxane in water. This treatment would be more efficient and reliable than in situ treatment methods that are currently available for 1,4-dioxane.

Alternatives Considered for the ARDC Landfill:

ARDC Landfill closure and post closure was included in the determination of alternatives as well as the inclusion of monitoring for 1,4-dioxane, along with other contaminants in the groundwater monitoring program as 1,4-dioxane was detected at low levels in the groundwater near the landfill. The ARDC Landfill was permitted by the state of Nebraska and a Solid Waste Disposal Area License was issued in 1981. The landfill was closed in 1993. Inspections by the state have indicated some issues with the operation of the landfill when active. All investigations and removals associated with OU 5 are considered complete at this time. Previous inspections of the existing cap indicated that it may not be in compliance with state requirements. The actions considered for the landfill are Alternatives 9, 10 and 4. Alternative 4 was considered so that long-term monitoring of the groundwater for the 1,4-dioxane associated with OU 5 and intermingled with the contaminants associated with OU 2 would be consistent. Closure and post closure activities, consistent with both 40 CFR Part 258 and Nebraska Regulation Title 132 were cited as ARARs in the FS.

10.0 Summary of Comparative Analysis of Alternatives

The evaluation criteria the EPA uses to compare and consider response actions are summarized below.

1. **Overall Protection of Human Health and the Environment** determines whether an alternative eliminates, reduces or controls threats to human health and the environment through ICs, engineering controls or treatment.

2. **Compliance with Applicable or Relevant and Appropriate Requirements** evaluates whether the alternative meets federal and state environmental statutes, regulations and other requirements that pertain to the Site or whether a waiver of such requirement is justified.

3. **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time.

4. **Reduction of Toxicity, Mobility or Volume of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of contaminants, their ability to move in the environment and the amount of contamination present.

5. **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents and the environment during the implementation.

6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of needed services and materials.

7. **Cost** includes estimated capital and annual operations and maintenance costs as well as present net worth cost. Present net worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

8. **State/Support Agency Acceptance** considers whether the state agrees with the EPA's analyses and recommendations as described in the RI/FS and Proposed Plan of July 2011.

9. **Community Acceptance** considers whether the local community agrees with the EPA's analyses and preferred alternative. Comments received on the Proposed Plan of July 2011 are an important indicator of community acceptance.

A comparative analysis of alternatives will be discussed by area and media (soil, groundwater). The discussion will reference the evaluation criteria according to the numbered list above. ICs are already in place addressing land use and use of the groundwater to be protective of any potential users. The responsiveness summary in this ROD reflects to an extent the community's acceptance.

Summary of Evaluation Criteria for Alternatives 1 and 2

Load Line 1 area addressing the soil that was not excavated below 20 feet in depth during the NTCRA:

At the time of the NTCRA, the EPA determined that excavation below 20 feet was technically challenging and cost prohibitive. Those considerations are still valid. The remaining area of soil contaminated with 1,4-dioxane may be difficult to locate and the leaching mechanism may already have carried the contamination deeper or into the groundwater since the NTCRA was completed in 2008.

Alternative 1 requires no excavation, maintains existing ICs, adds ICs for signage and groundwater use restriction and would allow for the Site area to remain in its present condition.

Alternative 2 would attempt to locate and remove any contaminated soil left in place during the NTCRA below 20 feet in depth to approximately 40 feet (or depth of groundwater) for disposal. Existing ICs will remain in place.

Alternative 1 does not change criteria 1 through 6 and does not add any cost to the response action.

Alternative 2 may have an impact on criteria 1 through 5 by reducing the amount of contaminated soil available to contribute contamination to the groundwater. If contamination is located and removed, it will have a minimal effect by reducing threats to human health and the environment, reducing the mobility and volume of contaminants by removing them and increasing the long-term effectiveness and permanence. Deep excavation would pose technical and administrative issues to safely implement the remedy; the cost is estimated to be $590,841.

Response letters from a few local residents did support the implementation of Alternative 2.

NDEQ commented that if Alternative 1 were selected, notification and restrictions should be added to the ICs pertaining to the contaminated soils left in place.

Load Line 1 area addressing the groundwater that has been contaminated with 1,4-dioxane and has commingled with TCE and RDX:

There are two alternatives provided in the FS that consider ex situ treatment, Alternatives 7 and 8. Information available on both treatment systems indicate they would not necessarily be successful in treating the 1,4-dioxane in addition to meeting the discharge requirements that are ARARs. The description of both alternatives mentions the possibility of transporting the treated water to a wastewater treatment plant, but it is not apparent that transportation of treated water to a wastewater treatment plant was included in the cost estimate in the FS. The application of the first five evaluation criteria (protectiveness, compliance with ARARs, effectiveness, permanence and reduction of contaminants) are not necessarily met; in addition, there is a question of implementability and costs. Therefore, ex situ treatment technologies, as described in the FS, were not considered as viable when compared to the other alternatives.

The remedy as described for Alternative 5 — In Situ Chemical Oxidation has been successfully implemented in sites across the country and in fact is being implemented at a site in the state of Nebraska. The type of chemical compound to be injected and the design of the method of injection are key components as to the success of the alternative. The chemical compound being injected at the other Nebraska site is different from what is being recommended at OU 5, but consideration of the details, such as the selection of the compound, can be considered during the design and the implementation of the pilot study. The injection locations are tentatively located on a grid across the area encompassed by the 50 ug/l isoconcentration contour in Figure 6.5 of the FS. This plan would allow for the injected material to react with the area that contains the bulk mass of 1,4-dioxane for the pilot study, and then could be adjusted to address additional areas as determined to be necessary.

Alternative 6 — In Situ Chemical Oxidation by Ozone Sparging presents concerns as to the potential for successful application of this technology. The FS describes the location of the injection points (Figure 6.6) at the downgradient part of the area encompassed by the 50 ug/l contour. The description of the technology as it is intended to be applied relies on the movement of the contaminant plume to be treated as the bulk mass of the plume encounters the zone of influence of the injection wells. The 1,4-dioxane was introduced to the environment in the late 1970s to early 1980s with the disposal of wastes into the trenches at Load Line 1. The RI has indicated that the bulk mass and higher concentrations of the 1,4-dioxane plume has only traveled approximately 250 feet in the aquifer in a time frame of 30 years. The location of the concentrated mass of the 1,4-dioxane plume indicates a slow rate of migration since it was introduced to the groundwater at the disposal trenches. In consideration of this slow migration, the plan for a pattern of injection points should be somewhat similar to that recommended in Alternative 5 to effectively treat the contaminated plume of 1,4-dioxane. Expanding the number of injection points would have a substantial impact on the cost of Alternative 6. There are also concerns as to the control of the ozone zone of influence if this remedy were implemented.

A comparative analysis of the two in situ treatment technologies indicate they have the potential to reduce the threat to human health, comply with ARARs, can have an effect on both short-term and long-term effectiveness and permanence and can reduce the toxicity, mobility or volume of contaminants through treatment. The difference is in the implementability and cost of the two as they have been described in the FS. Alternative 5 as described in the FS has the potential to reduce the 1,4-dioxane in the groundwater more effectively with less cost than Alternative 6.

Alternative 3 — No Action/Groundwater would not implement any remedial actions at Load Line 1 and would retain the existing ICs at the ARDC. This alternative as described in the FS would rely on the concentrations of the groundwater contaminated with 1,4-dioxane to migrate and gradually be reduced as it travels through the groundwater aquifer. The reduction would be based upon dilution since there has been no indication that 1,4-dioxane reduces by natural attenuation in the subsurface media. Information obtained during the RI indicates the plume would eventually migrate to the USACE EW-11 extraction well and be treated at the AOP.

Discussion of the no action alternative in the FS indicates that the 1,4-dioxane plume, if it migrated to the focused EW-11, would be treated at the AOP. This alternative did not consider other potential actions that could have an effect on the migration of the plume. The USACE and a contractor for two PRPs are investigating the potential of focused treatment areas immediately adjacent to the location of the 1,4-dioxane plume. There is an area of the contaminated groundwater plume from Load Line 1 which has high concentrations (≥10,000 ug/l) of TCE. The PRPs are producing a report on a pilot treatability study that considers in well treatment units (IWTU) to reduce the high levels of TCE in the groundwater. The pilot study considers an alignment of IWTU wells perpendicular to the plume to be able to cut off and reduce the mass of TCE. The alignment of the wells would have an impact on the groundwater flow in the contaminated aquifer at the area of the 1,4-dioxane plume. The USACE has been gathering information in the same area of the Load Line 1 plume to consider focused treatment options.

In consideration of the potential focused treatment options that are being considered, in addition to the information on the characteristics of 1,4-dioxane in a subsurface media, Alternative 3 would not reduce the potential threat to human health; would not meet ARARs; would have no effect on short-term or long-term effectiveness or reduction of contaminants; would be implementable; would not incur additional costs; and would not be acceptable to the local community as a result of the comments received.

Alternative 4 — Long-term Monitoring of Groundwater is an alternative that will monitor the movement of the contaminated groundwater at both the Load Line 1 area and the ARDC Landfill. This alternative would use existing and newly constructed monitoring wells at both locations and could be implemented whether or not other treatment alternatives are used. This alternative alone would provide monitoring information in support of protection of human health and compliance with ARARs. This alternative used with treatment alternatives would provide information to determine short-term and long- term effectiveness, reduction of toxicity, mobility or volume of contaminants through treatment and would monitor implementability in addition to meeting the first two criteria. Alternative 4 was included as an alternative for both locations to provide for the monitoring of the COCs associated with OU 5 and OU 2. (Additional monitoring requirements are necessitated by the landfill closure and post-closure requirements under Nebraska Title 132.) ICs and access acquisition may need to be completed downgradient of the ARDC Landfill. The evaluation criteria ICs and access would be the same as described for Load Line 1.

Alternative 9 (modified) would allow NU to provide a final closure and post-closure plan that would be acceptable to the state of Nebraska. Closure requirements would include an adequate cap, maintenance of the cap, landfill gas monitoring, groundwater monitoring and financial assurance. The existing ICs at the ARDC would remain in place. As stated above, a determination of the need for additional ICs would need to be made. Alternative 9 (modified) would also be protective of human health, comply with ARARs as identified in this ROD, reduce the ability of contaminants to be

transported to the groundwater, provide both short-term and long-term effectiveness for human exposure to buried wastes and prevents contaminants from reaching the groundwater; it is implementable, would be more cost effective than Alternative 10 and is acceptable to the community.

Alternative 10 considered removal of all landfill wastes and transportation to an approved off-site location followed by placing a cover over the excavated area, seeding and groundwater monitoring. The existing ICs at the ARDC would remain. Alternative 10 would meet the first five criteria, would be difficult to implement due to the acquisition of land and permitting requirements, would be more costly than Alternative 9 and does not have the support of the state or the EPA since moving and disturbing the entire contents of a landfill would create additional issues and is not the goal of the landfill permit process. A comment by a local resident was supportive.

11.0 Principal Threat Waste

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP § 300.430[a][1][iii][A]). The principal threat concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination 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, nonaqueous phase liquids (NAPLs) in groundwater may be viewed as source material.

The source areas that could be considered principal threat wastes at OU 5 were characterized and removed during the NTCRA completed in 2008. The selected remedy addresses contamination that is not considered principal threat waste.

12.0 Selected Remedy

Summary of the Rationale of Selected Remedy

The selected remedy for OU 5 for each of the two areas (Load Line 1 and the ARDC Landfill) has not changed from the Proposed Plan of July 2011[3] and is consistent with remedies being implemented and considered by the USACE or other PRPs at other OUs of the Site.

Load Line 1-Soil: The selected remedy is Alternative 1— No Action/Soil with additional ICs to restrict land usage where contaminated soils remain. The considerations that were used during the NTCRA were determined still to be valid. The area below 20 feet in depth would be difficult to locate and the leaching mechanism may have already transported the remnant contamination deeper to the groundwater since the removal action was completed in 2008. The estimated cost is $590,841. As discussed in the comparative analysis, the alternative would not necessarily be cost effective and could be difficult to implement.

[3] The selected remedy for the ARDC Landfill is stated more specifically here than in the FS and the Proposed Plan. The selected remedy for the landfill requires that closure and post closure be performed, in compliance with 40 CFR Part 258 and Nebraska Regulation 132, both which were cited as ARARs in the FS.

Load Line 1-Groundwater: The selected treatment remedy is Alternative 5 — In Situ Chemical Oxidation with Alternative 4 — Long-term Monitoring of Groundwater. The factors considered in the decision to implement treatment of the groundwater contaminated with 1,4-dioxane are:

- The concentrations of 1,4-dioxane in the groundwater are considerably above the PRGs; the level of risk allow for the consideration of treatment since the contaminant has been classified as a Group B2 probable human carcinogen of low carcinogenic hazard and may lead to adverse health effects.

- The groundwater aquifer affected by the contamination is used for irrigation and hydraulically connected to an aquifer used for drinking and irrigation.

- The extent of the higher concentration and mass of the 1,4-dioxane plume is within a somewhat confined area of approximately 250 feet by 100 feet within an isoconcentration line of 50 ug/l. The small areal extent of contamination supports the opportunity to complete a pilot treatability test to determine the potential success of the remedy as well as to easily expand the remedy if successful for cleanup.

- The risk assessment recognizes there are no immediate receptors immediately downgradient of the plume. There are also ICs in place on the NU property that control both the use of the land and groundwater.

The EPA is aware that both the USACE and other PRPs are considering focused remedial actions that could influence the flow rate and thus the migration of the 1,4-dioxane in the area of higher concentration (within the 50 ug/l isoconcentration line described above).

A risk management determination was made in consideration of the existing conditions and the potential future focused response actions that justify the treatment of the 1,4-dioxane at this time. Limited technologies are available for in situ treatment of 1,4-dioxane providing the opportunity to reduce the toxicity and mobility of the contaminant through treatment now while the plume is somewhat confined to a smaller area.

ARDC Landfill: The selected remedy is a more specific statement of Alternative 9 that appeared in the FS and the Proposed Plan. The selected remedy is closure and post closure which includes enhancement of a landfill cap, maintenance of the cap, landfill gas monitoring, long-term ground water monitoring for a suite of analytes identified in Title 132, and financial assurance. Alternative 4 was selected so that groundwater monitoring for 1,4-dioxane, unique to OU 5, would be included.

Description of the Selected Remedy

The comparative analysis of the alternatives and a summary of the rationale of the selected remedy at OU 5 describe in detail the information the EPA has considered in the selection process. The following is a brief description of the remedy and work to be performed at both areas of OU 5.

Load Line 1

Alternative 1 — No Action/Soil: This alternative would not involve any remedial actions with the exception of existing ICs at the ARDC. The NDEQ has recommended that the location of the trench where the small amount of contaminated soil was not removed during the NTCRA be added as an IC to notify future owners of the location and any associated activity restrictions. The potential for contact with contaminated soil (20 feet or deeper) is unlikely and would probably only occur if a structure with large column loadings were considered and some type of deep foundation (drilled piers or predrilled piling) were placed above that particular area.

Alternative 4 — Long-term Monitoring of Groundwater: This alternative would involve monitoring groundwater wells using both existing and new monitoring wells at Load Line 1 and the ARDC Landfill. The wells would demonstrate stable or decreasing plume concentrations and no further migration of the 1,4-dioxane. Existing ICs at the ARDC would remain in place. Dependent upon location, additional access agreements may need to be obtained at areas downgradient of the ARDC Landfill. The monitoring information will be critical to the design of the remedial action at Load Line 1.

Alternative 5 — In Situ Chemical Oxidation: This alternative is the in situ chemical oxidation (ISCO) aerobic aquifer and Fenton's (Bio Option) as listed in Table 6.5 and Table K-6 of the FS. This alternative would initially focus on the area of the plume above 50 ug/l of 1,4-dioxane.

A pilot study would be implemented to determine the aquifer conditions and spacing of injection points. The pilot study will also determine what compound(s) to inject to achieve the most effective remedy. This would be preceded by additional investigation and sampling to determine the current plume configuration and would obtain any additional information to design the injection procedure. If results of the pilot study are successful; the area could be expanded as needed to meet the PRG for 1,4-dioxane across the entire plume.

ARDC Landfill

Alternative 9 (modified) Landfill Closure and Post-Closure and Alternative 4 Groundwater Monitoring of 1,4-dioxane: This alternative would provide for the closure of the ARDC Landfill area that had been constructed under a permit from the state. NDEQ would determine what requirements are appropriate for closure under Nebraska regulations at Title. A field investigation may need to be completed to determine the area to be covered, existing condition of the cover and the maintenance requirements to be followed. Landfill gas monitoring would be required as well as groundwater monitoring that would analyze for Title 132 contaminants. Financial assurance for closure and post-closure would be required. In addition, groundwater monitoring for 1,4-dioxane would also be performed. As previously mentioned, a review in regard to access for additional monitoring wells on privately owned land would have to be considered.

Summary of Estimated Costs

A summary of estimated costs of the selected remedy are listed below. These costs were estimates and were provided in the RI/FS. The estimates include a 15 percent contingency. The costs to implement the existing ICs were not included in the estimates.

Alternative 1 —No Action/Soil	$0
Alternatives 4 and 5 — Monitoring at Load Line 1 and ARDC Landfill and In Situ Oxidation at Load Line 1	$2,548,194
Alternative 9 (modified) — Landfill Closure and Post Closure above)	$2,798,640

Expected Outcomes of the Selected Remedy

The selected remedy at each location of OU 5 was chosen over the alternatives that were presented in the FS because the outcome will be protective of human health and the environment by actively remediating the 1,4-dioxane-contaminated groundwater at Load Line 1 and closing the permitted landfill according to state requirements so that 1,4-dioxane and the Title 132 contaminants in the landfill will not reach the groundwater aquifer that supplies water for irrigation and drinking water at levels of concern.

The selected remedy at Load Line 1 should reduce the 1,4-dioxane in the groundwater to below the PRG of 6.1 ug/l that is currently established.

The selected remedy at each location was designed to meet federal and state ARARS as listed in the RI/FS and discussed in the Proposed Plan and within this document.

The EPA's Office of Research and Development (ORD), which conducts research of potential treatment technologies and evaluates the effectiveness of treatment technologies used throughout the United States, has reviewed the conditions existing at this Site, specifically the groundwater contamination at OU 5. ORD recommends in situ treatment of 1,4-dioxane.

Any adjustments or changes to the selected remedy will be considered as the design and actions are implemented. The alternative at Load Line 1 includes a pilot test which will allow for the adjustment of parameters as that action proceeds and is expanded to treat the 1,4-dioxane. Because the remedy will result in hazardous substances, pollutants or contaminants remaining on-site, five-year reviews will be required.

The selected remedy at OU 5 for the Load Line 1 area follows the same remedial goals identified in the ROD for OU 2 which would allow for the unlimited use of the groundwater in consideration of the contaminants that were addressed in all actions at the Site.

13.0 Statutory Determinations

Under CERCLA section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost

effective and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The selected remedy at each location of OU 5 is designed and expected to be a final cleanup action at this OU and represents the best balance of trade-offs among alternatives with respect to pertinent criteria given the scope of the action. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity or mobility of hazardous wastes as a principal element and a bias against off-site disposal of untreated wastes. This preference is addressed in the selected remedy at both areas of OU 5 and is consistent with the selected remedy for OU 2.

The summary of comparative analysis above discussed the nine evaluation criteria as they were applied and considered in the selection of the remedy at both locations of OU 5. The rationale for the selected remedy at each location is also discussed above.

The discussions above cover the considerations of statutory requirements that led to the selection of the remedy at Load Line 1. It is important to note the location of the concentrated mass of 1,4-dioxane is somewhat confined in areal extent and is located in the upper-to-middle zone of the groundwater aquifer. There are limited in situ remedial alternatives that have been applied successfully to treat 1,4-dioxane. The USACE and/or other PRPs may implement a focused treatment technology which could potentially affect the flow characteristics of the aquifer in the area of concentrated mass of 1,4-dioxane which would, in turn, affect the selected remedy as it is now planned. The EPA Region 7 in cooperation with ORD has determined that the in situ treatment option should be implemented as soon as reasonably possible to effectively treat the 1, 4-dioxane.

Five-Year Reviews of the Selected Remedy are Required

Because this remedy will result in hazardous substance, pollutants or contaminants remaining on-site above health-based levels, a statutory review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within five years after the initiation of the remedial actions.

14.0 Documentation of Significant Changes

The selected remedy has not been significantly changed from the preferred alternative presented in the Proposed Plan.

PART III: RESPONSIVENESS SUMMARY

This responsiveness summary has been prepared in accordance with CERCLA and the NCP. This document provides the response from the EPA to the comments received during the public-comment period regarding the Proposed Plan for OU 5.

On July 1, 2011, the EPA released the Proposed Plan and the Administrative Record File which contains the documents considered or relied upon by the EPA with regard to response actions at OU 5 of the Site. The public-comment period ran from July 1 through August 1, 2011. A public meeting was held on July 13, 2011, from 7:00 to 9:00 p.m. at the Research and Education Building on the ARDC. At the public meeting, the EPA explained the Superfund program and process leading up to a decision for a response action. The Site conditions were explained as well as the alternatives that were considered for response actions. A copy of the transcript from the public meeting and written comments are included in the Administrative Record File.

This responsiveness summary is divided into comments received from (i) local residents, (ii) NU, (iii) USACE and (iv) NDEQ.

The comments from local residents during the public meeting were noted in the transcript. The EPA had an opportunity to discuss the Site and answer questions posed by local residents after the formal public meeting on the evening of July 13, 2011. The EPA also received three written comments concerning the Site issues during the comment period. The issues brought up and the EPA's responses to them are as follows:

Community Comments

1. There was a concern over the decision not to continue the excavation at Load Line 1 as well as some misunderstanding of the soil alternatives at Load Line 1.

EPA Response: The EPA does not share this concern. The only two alternatives addressing the soils at Load Line 1 after the NTCRA that was completed in 2008 were Alternatives 1 and 2. Alternative 2 would have NU attempt to remove the soils that had some contamination slightly above the removal goals at the bottom of the trench at Load Line 1 (below 20 feet in depth). This issue has been discussed in the Decision Summary and in section 12 of this ROD. During implementation of the NTCRA, the EPA determined that excavation should stop at 20 feet, as the extremely small amount of contamination left in the soil would have very little if any effect on the mass or concentrations of 1, 4-dioxane in the groundwater. The estimated cost with contingency, stated in the FS, was $590,841 to excavate the area described in Alternative 2. In selecting the remedy in this ROD, the EPA determined that it would not be cost effective to further excavate because of the concern that the remnant contamination may be difficult to find, if still present, and the funds could be used more effectively toward treating the groundwater as recommended in Alternative 5.

2. There was a comment that Alternative 10, removal and off-site disposal of landfill wastes, should be selected at the ARDC Landfill.

EPA Response: The EPA disagrees. The alternative of removing all contents of an existing landfill and moving it to another approved location is commonly used in an FS to compare other alternatives such as closure under the conditions of the Solid Waste Disposal Area License described in Alternative 9. The ARDC Landfill is a state-permitted landfill which indicates the state found the landfill conditions appropriate for containing solid wastes. The contaminated source materials in the soils were excavated during the removal actions. Now that the removal actions and investigations have been completed, the closure and post-closure requirements of Title 132 of the Nebraska state regulations can be completed. Closure will ensure that the cap is maintained and the groundwater is monitored so that any releases of hazardous substances at levels that pose a threat to human health and the environment may be immediately addressed.

3. A commenter stated that response actions are necessary to restore the groundwater for unlimited use.

EPA Response: The EPA agrees.

4. Commenters expressed concern that there had been radioactive wastes and animal carcasses buried at the Site.

EPA Response: The EPA agrees that continued presence of such wastes could be a concern, but these wastes were removed during the NTCRA. The RI, RACR and the action memorandum associated with the NTCRA identified a variety of radioactive wastes, animal carcasses, etc., associated with NU activities at the Site. Following the NTCRA, analytical results collected from the areas where such waste was identified were reviewed by NU, the EPA, NDHHS and NDEQ. The results indicated that the remaining materials in the landfill did not pose a threat to human health and the environment with the exception of the 1,4-dioxane found to be present in the groundwater. That contamination will be addressed by the response action that has been selected. The ARDC Landfill will be closed according to state regulations.

5. A commenter expressed concern over the possibility of mustard gas being disposed of at the ARDC Landfill area by the DOD.

EPA Response: Although the EPA is not the lead agency to research and determine the validity of the potential disposal of test kits that were used to train troops for chemical warfare, the EPA is aware of reports that some of the test kits had been disposed of at or in the immediate area of the ARDC Landfill. Reportedly, these kits contained some very small quantity of mustard agent; the reports indicated they were disposed of either at the Offutt Air Force Base or at the ARDC Landfill. The USACE has monitored the groundwater downgradient from the landfill for the degradation product (thiodiglycol) that would be expected to be detected if the mustard agent had leached to the groundwater. There have been no detections of the degradation product. The EPA is also aware of a report that a bulldozer operator at the ARDC Landfill noticed some greenish vapor or gas coming from some unknown source during the landfill operations. The USACE has compiled information on this issue and reported that mustard agent is a liquid at ambient conditions and not a gas. Additional information can be obtained from the USACE Administrative Record at the Mead Library in a report dated August 2012. The report is titled "Final MMRP Site Inspection Report, Nebraska Ordnance Plant, Saunders County, Nebraska, FUDS Property No. B07NE0037." MMRP refers to the Military Munitions Response Program.

6. A commenter asked what the EPA has done to require the USACE to hold Restoration Advisory Board (RAB) meetings and stated the USACE has refused to hold RAB meetings.

EPA Response: The commenter raises a concern regarding another part of this Site, the areas contaminated as a result of activities conducted by DOD. This ROD concerns only issues associated with OU 5 of the Site and discusses the response actions considered necessary to address contamination attributable to NU activities. Other parts of this Site where DOD conducted military operations are referred to as Formerly Used Defense Sites (FUDS). Under federal law, the USACE (acting on behalf of DOD) has the option to establish a RAB at FUDS to assist community members in understanding the response actions that are necessary. The EPA is aware the Site RAB is inactive at this time but that USACE holds quarterly open house meetings for community members to ask questions and be updated on current activities. The EPA does not have legal authority to direct the USACE to hold RAB meetings.

Comments by NU

7. Comments by NU were submitted in a letter during the comment period. NU is requesting that Alternative 4 — Long-term Monitoring of Groundwater be selected as the only alternative necessary for a response action at the Load Line1 area where the groundwater has been contaminated with 1,4-dioxane. NU states that Alternative 5 — In Situ Biological Oxidation does not meet the cost-effectiveness standard of the NCP. The following reasons are summarized from NU's comment letter with the EPA's response following.

a. The source of the 1,4-dioxane has been removed.

EPA Response: Most sources of the contamination have been removed during the NTCRA, but there may be a small remnant of 1,4-dioxane-contaminated soil at Load Line 1 below 20 feet in depth.

b. The FS states that the plume characterization conducted during the Phase II Supplemental Investigation concludes that the 1,4-dioxane will migrate and be extracted along with TCE and treated at the existing AOP. Thus, the existing treatment plant will remove 1,4-dioxane along with TCE, the primary contaminant at issue for the Site. NU states that this fact renders the proposed Alternative 5 in the Proposed Plan redundant and therefore, it cannot be cost-effective as mandated in the NCP.

EPA Response: The EPA agrees that 1,4-dioxane has migrated from the trenches where it was originally disposed by NU in the late 1970s through the early 1980s when it discarded scintillation fluids. Phase II of the Supplemental Investigation confirmed that the 1,4-dioxane plume at Load Line 1 extends in a trend to the south/southeast from the disposal trenches. The center of the highest concentration and mass of the 1,4-dioxane plume within the 50 ug/l isoconcentration line is approximately 250 feet downgradient from the disposal trenches. The distance to the USACE focused extraction well EW-11 from the center of the 1,4-dioxane plume is approximately 6,000 feet. The center of the 1,4-dioxane plume has traveled 250 feet in approximately 30 years. This is an estimate as it is not known when the 1,4-dioxane reached the groundwater after its initial time of disposal. The Supplemental Investigation indicated that the 1,4-dioxane plume appeared to be trending toward EW-11, but there has been no estimate of the travel time that the bulk of the plume would take to reach the well. As indicated in Section 12 of this ROD, the USACE and other PRPs are considering focused treatment options immediately down and side gradient of the bulk of the plume. This treatment has the potential to alter the flow path of the 1,4-dioxane that is intermingled with the TCE and RDX. The EPA shares a concern with the USACE that the 1,4-dioxane may be diverted and not necessarily drawn into the zone of influence of EW-11. The EPA does not agree with NU that the 1,4-dioxane would necessarily be captured in the treatment system operated for OU 2 by the USACE.

The EPA understands the concern that NU has about the cost of in situ treatment at the Load Line 1 area and agrees that cost must be considered in selecting a remedy. Section 330.430 of the NCP specifies that cost is one of the elements in selecting a remedy, but cost effectiveness has a precise meaning: "Cost effectiveness is determined by evaluating the long-term effectiveness and permanence, reduction of toxicity, mobility or volume through treatment and short-term effectiveness. Overall effectiveness is then compared to cost. A remedy is considered cost-effective if its costs are proportional to its overall effectiveness." 40 CFR 330.430(f)(ii)(D). While there are costs associated with treating 1,4-dioxane at OU 5, a decision not to treat would result in the migration and expansion of 1,4-dioxane

in the groundwater and would not result in a reduction of toxicity, mobility or volume through treatment In situ treatment of 1,4-dioxane is cost effective when comparing it to costs that would be incurred to address the 1,4-dioxane at a downgradient location, particularly if it were not captured byEW-11.

c. Even though the local groundwater aquifer could theoretically be used for domestic purposes, a site-wide agreement with the USACE prohibits the drilling and installation of domestic water wells within the plume areas. Existing ICs should be evaluated and changes made if needed to increase the protections afforded through Alternative 4.

EPA Response: The EPA agrees that ICs are already in place at the Site and may need to be modified.

d. NU states that the data it presented in the RI/FS demonstrates there are no local receptors immediately downgradient of the contaminant plume and the contaminants in the groundwater will be extracted by the focused EW-11.

EPA Response: The EPA agrees with the conclusion that there are no receptors immediately downgradient of the contaminant plume at Load Line 1. The Proposed Plan, page 6, states: "The downgradient migration of the 1,4-dioxane appears to be trending to the south/southeast in the direction of the USACE well FEW-11." The EPA does not agree with NU's characterization regarding the capture of 1,4-dioxane by EW-11. The Proposed Plan does not state that the 1,4-dioxane plume would be extracted by EW-11. Additional information on the aquifer characteristics would need to be obtained to make that statement. The EPA is concerned that the 1,4-dioxane may be diverted and not necessarily drawn into the zone of influence of EW-11.

e. NU requests that the EPA identify other sites that are comparable to OU 5 where the 1,4-dioxane is commingled with TCE and RDX, have existing ICs and have operating extraction wells at the perimeter of the site.

EPA Response: The EPA recognizes that there are no sites with the same characteristics as OU 5 of the Site. OU 5 is unique in that there is a commingled plume containing 1,4-dioxane, TCE and RDX. There is innumerable Superfund sites where there are commingled plumes and PRPs have determined amongst themselves how to share costs of cleanup. One such site in Nebraska is at the Hastings Ground Water Contamination site, FAR-MAR-CO subsite, where one PRP paid for the groundwater cleanup and the other PRP paid for the source control cleanup.

8. NU states that if it is compelled to implement Alternative 5 for OU 5, it will be compelled to treat a disproportionate amount of contaminants, especially TCE, that are not associated with past NU activities. NU states this appears to be contrary to applicable CERCLA case law as well as the NU's 2005 consent decree with the United States (U.S. District Court for the District of Nebraska, Case No. 8:03CV0038), which holds NU responsible only for contamination associated with OU 5.

EPA Response: The EPA agrees that the 1,4-dioxane is commingled with the existing TCE and RDX contamination at Load Line 1 and that the plume has moved downgradient from the source area (the trenches at Load Line 1). The EPA understands that the costs of cleaning up 1,4-dioxane to its PRG at Load Line 1 may be increased due to the presence of TCE, however, the remedial action for the Load Line 1 groundwater at OU 5 will be completed when the PRG for 1,4-dioxane is reached. That event will occur before the cleanup level of TCE (5 ug/l) is reached (the OU 2 remedial action will address the

cleanup of the TCE). Under the Superfund law, where the harm is indivisible, as is the case here, NU is jointly and severally liable with other parties who disposed of hazardous substances found to be present in the Load Line 1 plume of OU 5. The USACE, with participation by two DOD contractors, is taking responsibility for the cleanup of the entire Site except for the 1,4-dioxane that is only attributable to NU operations.

Comments by USACE

9. The USACE commented in a letter to the EPA that the OU 5 Proposed Plan does not address remediation of TCE at the ARDC Landfill. The USACE asserts that NU disposed of wastes at Load Line 1, Load Line 2, the ARDC Landfill and the Sewage Treatment Plant Area, that their wastes included chemical wastes and statements in the RI/FS for OU 5 regarding TCE being attributable only to Air Force activities is inaccurate. The letter asks that justification be provided that NU does not have responsibility for TCE contamination in the ARDC Landfill area or clarify if TCE is being addressed by NU under a separate OU.

EPA Response: The purpose of the comment period of the Proposed Plan for OU 5 of the Former Nebraska Ordnance Plant Site was to encourage the public to review and comment on all alternatives presented in the plan that were considered for any response actions to be implemented at OU 5. The comment by the USACE is beyond the scope of the proposed plan process and this ROD. The USACE letter will be provided to the Department of Justice for consideration of any enforcement action against other parties.

To the extent that the USACE is commenting that the selected remedy for groundwater should include all contaminants, not just 1,4-dioxane, the EPA agrees that as a matter of law, responsible parties at a Superfund site are jointly and severally liable for contamination found to be present at a site unless there is a reasonable basis for apportionment of the environmental harm. However, at this Site, the USACE entered into an IAG with the EPA and the state of Nebraska in which it agreed to address the contamination at the Site that was related to DOD activities. This included widespread groundwater contamination. The USACE has performed investigations into the nature and extent of four groundwater plumes, all identified as OU 2, and has found high levels of TCE that it is now being addressed through several OU 2 actions. The USACE has installed treatment plants to capture the TCE contamination in these plumes and other PRPs are also exploring aggressive actions to capture the TCE. The EPA has identified 1,4-dioxane as the only contaminant of concern at OU 5 because the TCE that is commingled with 1,4-dioxane will be captured by a treatment plant that is operated by the USACE.

Comments by NDEQ

10. NDEQ has provided review and assistance during all phases of investigation and the NTCRA at OU 5. It continues to provide oversight of all activities at OU 5 and the entire Site as implemented by the USACE. NDEQ comments as briefly explained below were to provide clarification of certain issues they identified in the Proposed Plan.

a. NDEQ has received copies of the ICs from NU for the ARDC but has not received any for the Load Line 1 burial area. NDEQ recommends that if the contaminated soil is left in place (Alternative 2) at Load Line 1, an IC should be placed on the land to run in perpetuity to notify future owners of the location of the contamination and any associated activity restrictions.

EPA Response: The EPA agrees.

11. NDEQ comments that it will require an injection permit which has specific requirements and restrictions when the in situ treatment by injection is implemented at Load Line 1.

EPA Response: The EPA agrees that compliance with all laws will be required of any party doing work at the Site.

12. NDEQ comments that a determination of the closure requirements will be made upon a request from NU to close the ARDC Landfill.

EPA Response: The EPA agrees that such communication is necessary.

The EPA will include the above comments in the work plan that will be required for the remedial design and remedial action when the response actions are to be implemented.

The EPA has included all comments, verbal and written, in this responsiveness summary. The EPA considered each comment carefully and has responded above. The EPA refers the reader to documents contained in the AR for more specific information supporting the EPA's response.

GLOSSARY OF TERMS

Some specialized terms used in this Record of Decision are defined below:

Administrative Record: The body of documents that forms the basis for selection of a particular response at a site. An administrative record is available at or near the site to permit interested individuals to review the documents and to allow meaningful public participation in the remedy selection process.

Aquifer: An underground layer of rock, sand or gravel capable of storing water within cracks and pore spaces or between grains. When water contained within an aquifer is of sufficient quantity and quality, it can be used for drinking or other purposes. The water contained in the aquifer is called groundwater.

Applicable or Relevant and Appropriate Requirements (ARARS): The federal and state environmental laws that a selected remedy will meet.

Chemical Oxidation Treatment: The use of chemicals called "oxidants" to destroy pollution in soil and groundwater. Oxidants help change harmful chemicals into harmless ones.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): The law enacted by Congress in 1980 to evaluate and clean up abandoned, hazardous waste sites. The EPA was charged with the mission to implement and enforce CERCLA.

Contaminant Plume: A column of contamination with measurable horizontal and vertical dimensions that are suspended in and move with groundwater.

Groundwater: Underground water that fills pores in soils or openings in rocks to the point of saturation. Groundwater is often used a a source of drinking water via municipal or domestic wells.

Maximum Contaminant Levels: The maximum permissible level of a contaminant in water that is delivered to any user of a public water system.

Monitoring: Continued collection of information about the environment that helps gauge the effectiveness of a cleanup action.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The federal regulations that guide the Superfund program.

Operable Unit (OU): Term for each of a number of separate activities undertaken as part of a Superfund site cleanup.

Operation and Maintenance (O&M): Activities conducted at a site after the construction phase to ensure that the cleanup continues to be effective.

Plume: A body of contaminated groundwater flowing from a specific source.

Record of Decision (ROD): The decision document in which the EPA selects the remedy for a Superfund Site.

Superfund: The nickname given by the press for CERCLA because the program was well funded in the beginning.

Toxicity: A measure of degree to which a substance is harmful to human and animal life.

Figures and Tables*

To

RECORD OF DECISION

Former Nebraska Ordnance Plant Superfund Site

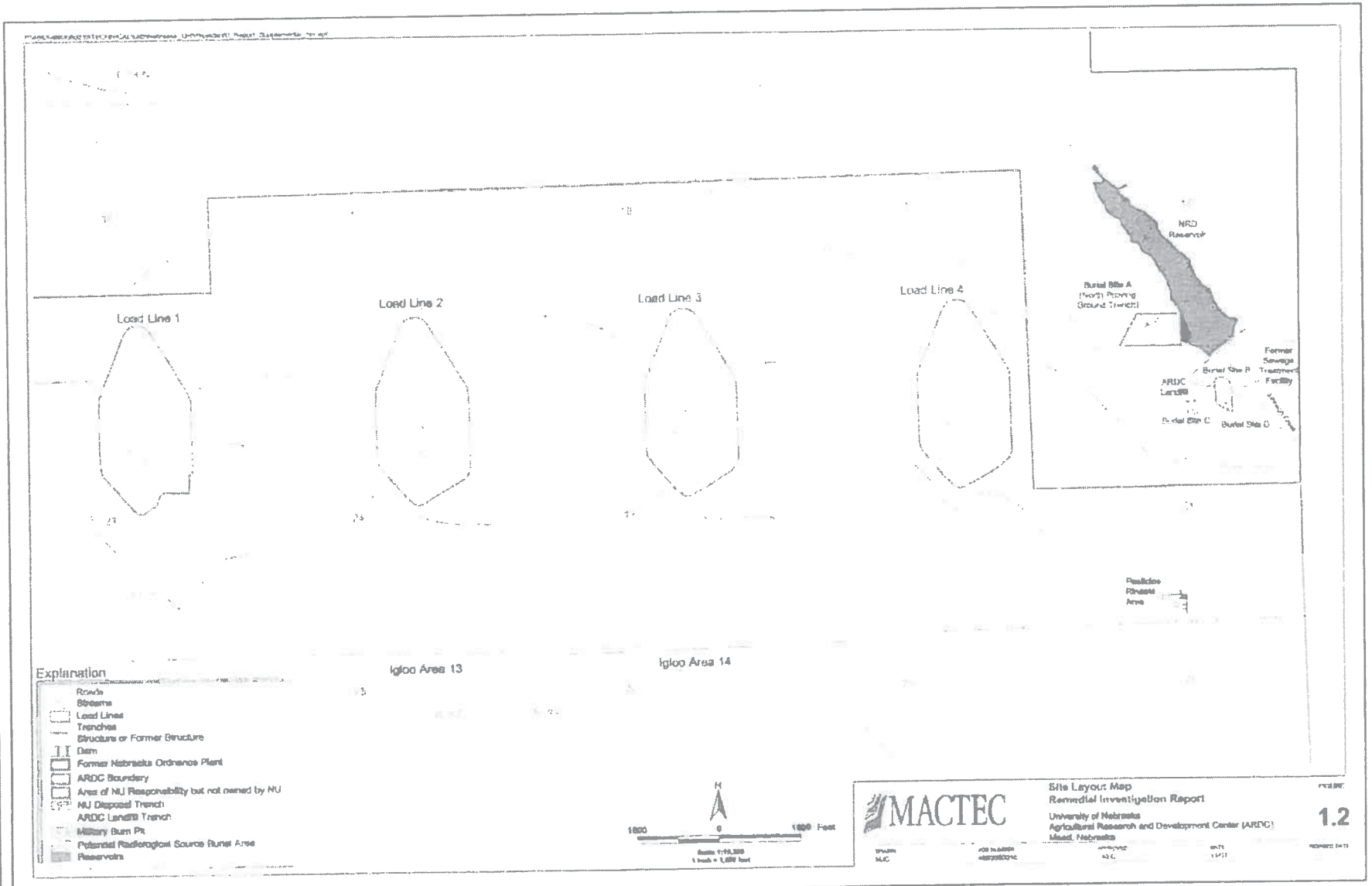
Operable Unit 5

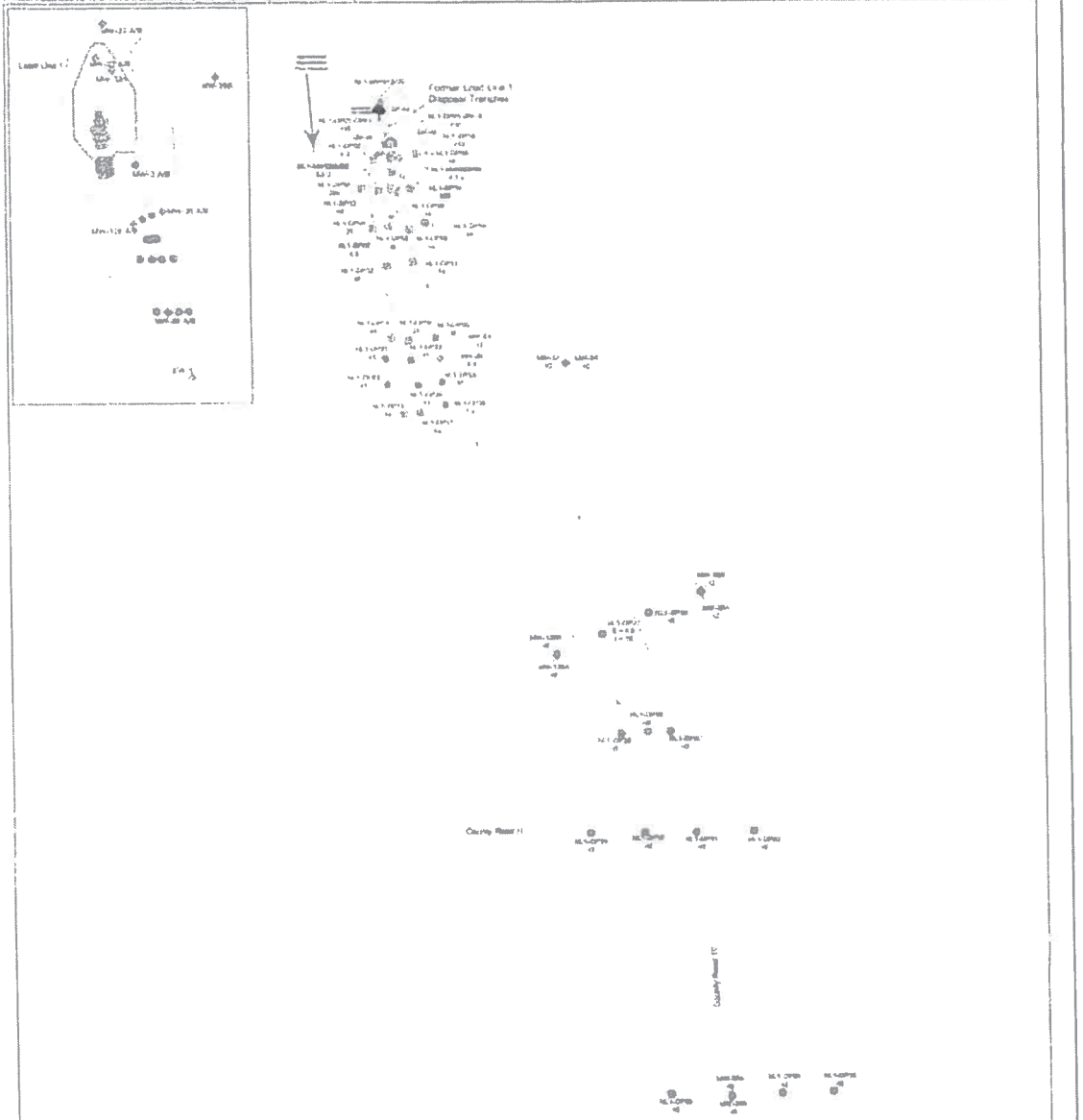
Mead, Nebraska

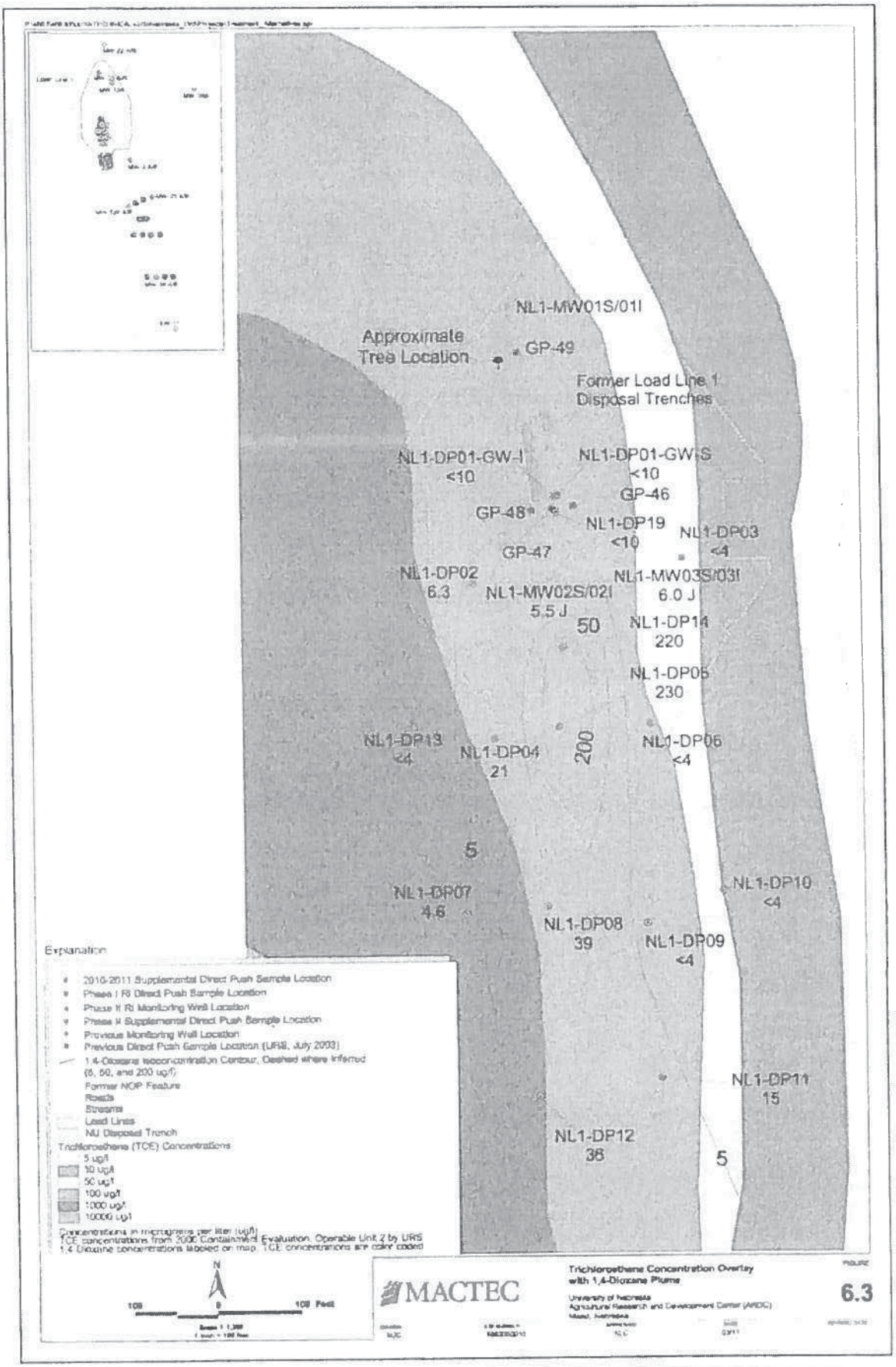
September 2013

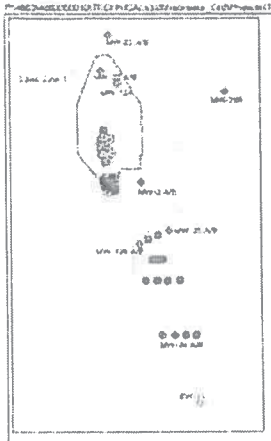
* Note: Figures 1.2, 5.3, 6.3, 6.5 and Tables K-6, K-5 and K-11 are from the Final Remedial Investigation/Feasibility Study (RI/FS) Report; Former Nebraska Ordnance Plant Site, Operable Unit 5; University of Nebraska Agricultural Research and Development Center; Mead, Nebraska; Final Report; April 8, 2011.

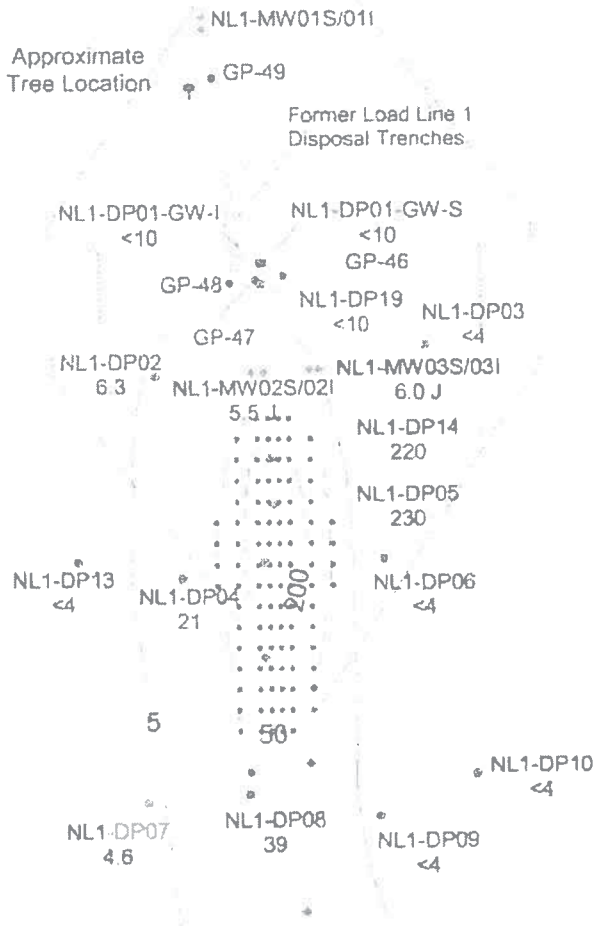
The attached Tables 6.1, 6.2 and 6.3 are revisions made upon request of the NDEQ for clarification purposes from the above noted RI/FS of April 8, 2011.


Load Line 1
Load Line 2
Load Line 3
Load Line 4
NRD Reservoir
Burial Site A (North Disposal Ground Trench)
Burial Site B
Former Sewage Treatment Facility
ARDC Landfill
Burial Site C
Burial Site D
Pesticide Rinsate Area
Igloo Area 13
Igloo Area 14
Explanation
Roads
Streams
Load Lines
Trenches
Structure or Former Structure
Dam
Former Nebraska Ordnance Plant
ARDC Boundary
Area of NU Responsibility but not owned by NU
NU Disposal Trench
ARDC Landfill Trench
Military Burn Pit
Potential Radiological Source Burial Area
Reservoirs
1800
0
1800 Feet
MACTEC
Site Layout Map
Remedial Investigation Report
University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead, Nebraska
1.2


Former Lined Land Application Disposal Trenches
County Road 11
County Road 17
Explanation
2010-2011 Supplemental Direct Push Sample Location
Phase I RI Direct Push Sample Location
Phase II RI Monitoring Well Location
Phase II Supplemental Direct Push Sample Location
Previous Monitoring Well Location
Previous Direct Push Sample Location (URS, July 2003)
1,4-Dioxane Isoconcentration Contour, Dashed where Inferred (5, 50, and 200 ug/l)
Former NOP Feature
Mid-Plume Concentration Plot Line (Figures 6.1 and 6.2)
Roads
Streams
Lead Lines
NU Disposal Trench
Concentrations in micrograms per liter (ug/l)
N
600
0
600 Feet
MACTEC
Lead Line 1
1,4-Dioxane Concentrations in Groundwater
University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead, Nebraska
FIGURE
5.3


NL1-MW01S/01I
Approximate Tree Location
GP-49
Former Load Line 1 Disposal Trenches
NL1-DP01-GW-I <10
NL1-DP01-GW-S <10
GP-46
GP-48
NL1-DP19 <10
NL1-DP03 <4
GP-47
NL1-DP02 6.3
NL1-MW02S/02I 5.5 J
NL1-MW03S/03I 6.0 J
50
NL1-DP14 220
NL1-DP05 230
NL1-DP13 <4
NL1-DP04 21
200
NL1-DP06 <4
5
NL1-DP07 4.6
NL1-DP10 <4
NL1-DP08 39
NL1-DP09 <4
NL1-DP11 15
NL1-DP12 38
5
Explanation
2010-2011 Supplemental Direct Push Sample Location
Phase I RI Direct Push Sample Location
Phase II RI Monitoring Well Location
Phase II Supplemental Direct Push Sample Location
Previous Monitoring Well Location
Previous Direct Push Sample Location (URS, July 2003)
1,4-Dioxane concentration Contour, Dashed where Inferred (5, 50, and 200 ug/l)
Former NOP Feature
Roads
Streams
Lead Lines
NU Disposed Trench
Trichloroethene (TCE) Concentrations
5 ug/l
10 ug/l
50 ug/l
100 ug/l
1000 ug/l
10000 ug/l
Concentrations in micrograms per liter (ug/l)
TCE concentrations from 2006 Containment Evaluation, Operable Unit 2 by URS
1,4 Dioxane concentrations labeled on map. TCE concentrations are color coded
N
100 0 100 Feet
MACTEC
Trichloroethene Concentration Overlay with 1,4-Dioxane Plume
University of Minnesota
Agricultural Research and Development Center (ARDC)
Waseca, Minnesota
FIGURE
6.3





Explanation

- Proposed Monitoring Well Location
- Proposed ISCO Injection Location
- 2010-2011 Supplemental Direct Push Sample Location
- Phase I RI Direct Push Sample Location
- Phase II RI Monitoring Well Location
- Phase II Supplemental Direct Push Sample Location
- Previous Monitoring Well Location
- Previous Direct Push Sample Location (URS, July 2003)
- 1,4-Dioxane Isoconcentration Contour. Dashed where inferred (5, 50, and 200 ug/l)
- Isco Injection Grid
- Former NOP Feature
- Roads
- Streams
- Load Lines
- NU Disposal Trench

Concentrations in micrograms per liter (ug/l)

N

100 0 100 Feet

MACTEC

Load Line 1 In Situ Treatment
ISCO Alternative

University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead, Nebraska

FIGURE
6.5

Table K-6

Cost Estimate Summary

ISCO - Aerobic Aquifer and Fenton's Reagent Injection

TASK		Estimated Cost
Preconstruction		
Design Plans, Bid Documents		$8,750
Work Plan		$13,400
Permitting (Boring)		$12,500
	Subtotal	**$34,650**
Pilot Study (3-month only)		
Well Installation and Development (3)		$46,880
Groundwater Sampling and Bacteria Analysis		$11,150
Fenton's Reagent Injection		$264,160
Reporting		$24,053
	Subtotal	**$346,243**
Construction - Bacteria and Fentons Injection		
Fenton's Reagent Injection (3X)		$660,700
Bacteria Injection (1X)		$94,900
	Subtotal	**$755,600**
Construction - Groundwater Well Installation		
Well Installation and Development (3)		$46,880
	Subtotal	**$46,880**
System Operation and Maintenance		
Labor & Utilities		$0
Maintenance Equipment		$0
	Subtotal	**$0**
Closure Activities and Reporting		
Quarterly GW Monitoring (2-years)		$197,235
Project Management and Reporting		$25,240
Closure Activities and Agency Consultation		$13,000
Well Abandonment		$12,000
	Subtotal	**$247,475**

Estimated Cost: Fenton's Reagent Injection	**$1,430,848**
Total Estimated Cost with Contingency at 15%	**$1,645,475**

Notes:

1. Pilot Study assumes 50 injection locations followed by 2 rounds of groundwater monitoring to determine effectiveness of treatment. Pilot Study will last 3 months.
2. Assuming a minimum of 100 injection locations for the first round of Fenton's. The first round includes the number of injections from the pilot study. Number of locations reduced in half for each proceeding injection round.
3. Injection of Fenton's and the bacteria will be performed using a direct push rig.
4. Groundwater monitoring will span 1 year after the first injection followed by 1 year of monitoring for closure.

Table K-5
Cost Estimate Summary
for Long Term Monitoring

Task		Total Cost
QUARTERLY MONITORING, REPORTING AND CLOSURE COSTS		
Quarterly Monitoring (4 quarters; year 1)		
Labor (Field, Reporting, Prj Mgmt)		$49,312
Sampling Equipment and Supplies, Travel, Shipping		$4,500
Purge Water Disposal (16-drums)		$6,400
Analytical - GW (20 wells)		$16,000
GW Quarterly Reports		$20,000
	Subtotal	**$96,212**
Pilot Study[1] (1-year only)		
Well Installation and Development (6)		$93,760
1 Year of Quarterly Groundwater Monitoring		$96,212
	Subtotal	**$189,972**
Six Additional Years of Quarterly Groundwater Monitoring[2] (escalated at 5% annually)		**$687,147**
Site Closure		
Closure Report		$5,000
Agency Consultation		$3,600
	Subtotal	**$8,600**
Groundwater Monitoring Well Abandonment		
Well Destruction		$12,000
Disposal Cost		$5,000
	Subtotal	**$17,000**
Quarterly Monitoring	**Total Cost**	**$902,719**

TOTAL ESTIMATED COST (No Contingency) **$902,719**

Notes:
[1]Pilot Study assumes first year of Long Term Monitoring
[2]Estimated number of years calculated from Table K-4.
Rounded up to 6-yrs to reach 1,4 Dioxane at 6.1 ppb plus one-year confirmation monitoring

Table K-11: Cost Estimate Summary for
ARDC Landfill Capping and Long-term Monitoring

Description	Quantity	Unit Price	Units	Total Price
Preconstruction				
Engineering				$40,600
			Subtotal	**$40,600**
Construction				
Mobilization	1	$8,000	LS	$8,000
Stripping and Grubbing	10,000	$2.00	SY	$20,000
Earthwork	10,000	$15.00	CY	$150,000
Revegetation	10,000	$2.50	SY	$25,000
			Subtotal	**$203,000**
Maintenance				
Long-term Maintenance	30	$3,000.00	YR	$90,000
			Subtotal	**$90,000**
Reporting				
Long-term Monitoring	30	$70,000.00	YR	$2,100,000
			Subtotal	**$2,100,000**
Estimated Cost: ARDC Landfill Capping and Long-term Monitoring				$2,433,600
Total Estimated Cost with Contingency at 15%				**$2,798,640**

Table 6-1 **Chemical-Specific Applicable or Relevant and Appropriate Requirements, OU5, Former Nebraska Ordnance Plant Site**

Standard, Requirement, Criterion, Or Limitation	Citation	Description	Comment
GROUNDWATER			
Federal Safe Drinking Water Act	42 USC §300g and regulation at 40 CFR Part 141	Establishes maximum contaminant levels (MCLs) which are health-based standards for public water systems. Establishes action levels for lead and copper.	The MCLs for organic and inorganic contaminants and action levels are relevant and appropriate.
Nebraska Department of Environmental Quality Regulations Groundwater Quality Standards and Use Classification	Title 118	Establishes standards and use classifications for groundwater sources of drinking water. Determines priorities for groundwater remedial actions. Establishes a method for determining preliminary cleanup levels for the different classifications of protected groundwater and a timeframe for remediation.	If releases of hazardous substances to the groundwater from the ARDC landfill are established by monitoring, the narrative and numerical requirements of Title 118 are relevant and appropriate to the groundwater at the site. Nebraska MCLs have been established for some compounds detected in the groundwater; for others, the EPA Health Advisory standards may apply via Title 118, Appendix A, Step 8.
Nebraska Health and Human Services Regulations	Title 179, Chapter 2	Establishes maximum contaminant levels (MCLs) which are health-based standards for public water systems.	
Landfill Closdure and Post-Closure			
Federal Clean Air Act	42 U.S.C. §§7401 *et. seq.*, 40 CFR Part 52		
Nebraska Department of Environmental Quality Air Quality Regulations	Title 129		
	Title 129, Chapter 4	Establishes State primary and secondary ambient air quality standards for particulate matter (< = 10 µm and > = 10 µm/< = 100 µm), sulfur dioxide nitrogen dioxide, carbon monoxide, ozone, and lead.	
	Title 129, Chapter 6	Establishes criteria for obtaining a permit to construct a source of potential toxic emissions.	
	Title 129, Chapter 18	Establishes new source performance standards	May be applicable if contaminants exceed threshold quantities.
	Title 129, Chapter 19	Adopts 40 CFR Part 52 regarding prevention of significant deterioration of air quality.	
	Title 129, Chapter 28	Establishes hazardous air pollution emission standards	May be applicable if contaminants exceed threshold quantities

Table 6-2: Action-Specific Applicable or Relevant and Appropriate Requirement
OU5, Former Nebraska Ordnance Plant Site

Standard, Requirement, Criterion, Or Limitation	Citation	Description	Comment
Landfill Closure and Post-Closure			
Federal Resource Conservation and Recovery Act (RCRA), as amended, and Criteria for Municipal Solid Waste Landfills	42 U.S.C. §§6901 *et seq.*, 40 CFR Part 258, Subpart B- Location restrictions (landfill gas monitoring) Subpart E – groundwater monitoring; Subpart F – Closure and Post-Closure Care; Subpart G – financial assurance.	Establishes minimum national criteria under Subtitle D of RCRA for municipal solid waste landfills, including location, design, operation, monitoring, closure and post-closure.	Applicable requirement as the ARDC Landfill is a solid waste landfill that received solid wastes through April 1993.
Nebraska Department of Environmental Quality Integrated Solid Waste Management Regulations	Nebraska Title 132 – Chapter 3 - locational, operational, design, closure and post-closure requirements for a municipal solid waste disposal area including landfill gas monitoring; Chapter 7 - groundwater monitoring; Chapter 8 – financial assurance	Establishes closure and post closure requirements for municipal solid waste landfills.	Relevant and appropriate requirement as the landfill ceased accepting waste prior to the effective date of Title 132 but Title 132 regulates landfills of this type.
Air			
Federal Clean Air Act, Federal Regulations for National Ambient Air Quality Standards	42 U.S.C. §§ 7401 *et seq.*, 40 CFR Part 50, 40 CFR Part 60 Subpart WWW, and 40 CFR Part 63 Subpart AAA	Establishes standards for ambient air quality to protect public health and welfare and requirements for installation of a gas collection system and monitoring (surface and gas wells).	May be applicable if criteria pollutants are discharged to air during a treatment process.
Nebraska Department of Environmental Quality Air Quality Regulations	Title 129, Chapter 4	Establishes standards for ambient air quality to protect public health and welfare.	May be applicable if criteria pollutants are discharged to air during a treatment process.

Table 6-3: Location-Specific Applicable or Relevant and Appropriate Requirements, OU5, Former Nebraska Ordnance Plant Site

Standard, Requirement, Criterion, or Limitation	Citation	Description	Comment
Federal			
Clean Water Act	33 U.S.C. §§ 1344	Action to prohibit discharge of dredged or fill materials into wetlands without permit	No dredged or fill material will be discharged into a water of the U.S. without a permit issued under 33 U.S.C. §§ 1344.
State			
Nebraska Department of Environmental Quality Air Quality Regulations	Title 129, Chapter 3	Establishes air quality control regions.	

APPENDIX B

STATEMENT OF WORK

I. INTRODUCTION

This Statement of Work (SOW) sets forth the requirements for the implementation of the remedy selected in the Record of Decision (ROD), signed by the delegate of the Superfund Division Director for the U.S. Environmental Protection Agency (EPA) Region VII on September 27, 2013, for the Former Nebraska Ordnance Plant Superfund Site (Site), Operable Unit (OU) 5. This SOW is incorporated into and made a part of the Consent Decree (CD) entered into by the Settling Defendant, the Board of Regents of the University of Nebraska, and the United States of America for the Remedial Design and Remedial Action (RD/RA) to be completed at OU 5 of the Site.

The Settling Defendant shall design, operate and maintain the remedy at two locations within OU 5, LL1 and the ARDC Landfill, in accordance with the ROD, this SOW, the Performance Standards and all deliverables created under this SOW and approved by EPA in consultation with NDEQ, ARARs, as well as pertinent reference documents (including those listed in Section VII of the SOW) and subsequent revisions thereto.

II. DESCRIPTION OF SELECTED REMEDY

A. LL1

1. Settling Defendant shall treat groundwater to address the principal contaminant of concern (COC), 1,4-dioxane, using in situ chemical oxidation (ISCO). Prior to installing a system to address the entire 1,4-dioxane plume, Settling Defendant shall implement a pilot study in an area of the plume with higher levels of the COC to determine design parameters for the remediation of the entire 1,4-dioxane plume.

2. Settling Defendant shall perform long-term monitoring of groundwater at LL1 to monitor the extent of the 1,4-dioxane plume and determine the effectiveness of the remediation.

3. Settling Defendant shall verify the existence of institutional controls (ICs) and shall implement an IC in the form of an Environmental Covenant, substantially similar to Appendix D to the CD, at the location of the non-time critical removal action where remnant soil contamination was left at depth.

B. ARDC Landfill

1. Settling Defendant shall perform closure and post closure care of the ARDC Landfill in accordance with Title 132, Chapter 3, Sections 005 and 006.

2. Settling Defendant shall perform long-term monitoring of groundwater to monitor for any movement of 1,4-dioxane, post-closure landfill gas monitoring pursuant to Title 132,

Chapter 3, Sections 004.17C and 006, and post-closure groundwater monitoring pursuant to Title 132, Chapter 3, Section 006 and Chapter 7.

3. Settling Defendant shall verify the existence of ICs on its property at the ARDC landfill and property near the ARDC landfill owned by others. Settling Defendant shall participate with EPA and NDEQ in identifying properties where soil and groundwater use restrictions are needed to prevent exposure to 1,4-dioxane and any other contaminants, which may be detected during post-closure groundwater monitoring, pursuant to Title 132, Chapter 3, Section 006 and Chapter 7. Settling Defendant shall enter into an Environmental Covenant, substantially similar to Appendix E to the CD that restricts use of property Settling Defendant owns at and around the ARDC landfill.

III. REMEDIAL ACTION OBJECTIVES AND PERFORMANCE STANDARDS

A. Remedial Action Objectives (RAOs)

1. Soil RAOs

a. For protection of human health - prevent exposure to soils with contaminant concentrations which result in an excess cancer risk greater than 1×10^{-6} or a Hazard Quotient greater than 1.0, whichever is less.

b. For protection of the environment - reduce the soil contaminant levels to prevent migration of 1,4-dioxane from soils to groundwater.

2. Groundwater RAOs

a. For protection of human health - prevent exposure to 1,4-dioxane where contaminant concentrations are greater than the preliminary remediation goal (PRG).

b. For protection of the environment - minimize further degradation of the local drinking water aquifer by the contaminants.

B. Performance Standards

Performance Standards include all Applicable or Relevant and Appropriate Requirements (ARARs), as listed in Tables 6.1, 6.2, and 6.3 of the ROD, cleanup goals, cleanup levels, cleanup standards, specifications and all measures for the performance of treatment processes, engineering controls and other controls set forth in the ROD, the SOW and any deliverable created and approved under the CD and the SOW.

1. LL1

Settling Defendant shall treat groundwater at LL1 until the Performance Standard for 1,4-dioxane is achieved and maintained. The Performance Standard is a risk-based cleanup level or preliminary remediation goal (PRG) which is 6.1 micrograms per liter *(ug/l)*.

2. ARDC Landfill – Title 132 requirements for closure, post closure care, and landfill gas and groundwater monitoring are the Performance Standards.

IV. REMEDIAL DESIGN FOR LL1

A. Pre-Design and Pilot Study

1. Pre-Design Investigation (PDI)

a. Settling Defendant shall conduct a PDI in order to gather information regarding the subsurface conditions that will facilitate the design of the ISCO system, including laboratory bench scale testing of chemical approaches to remediating 1,4-dioxane. The PDI shall be performed in accordance with an EPA-approved PDI Work Plan described in subparagraph b below.

b. Settling Defendant shall submit to EPA and NDEQ a PDI Work Plan for review and approval by EPA, in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW. The PDI Work Plan shall:

1) describe data gaps;
2) propose areal extent and depths of sampling; and
3) describe Quality Assurance/Quality Control (QA/QC) procedures in accordance with the Quality Assurance Project Plan (QAPP), Field Sampling Plan, and Health and Safety Plan.

c. Settling Defendant shall submit to EPA and NDEQ a PDI Evaluation Report for review and approval by EPA, in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW. The PDI Evaluation Report shall:

1) describe the investigation performed;
2) summarize the investigation results;
3) summarize the validated data (i.e., tables and graphics);
4) include data validation reports and laboratory results;
5) set forth results of statistical and modeling analyses;
6) include copies of field notes and log books; and
7) set forth conclusions and recommendations for the Remedial Design.

2. Pilot Study

a. Purpose of Pilot Study: Settling Defendant shall perform a Pilot Study to determine whether ISCO is an effective treatment at LL1 and if so, which, among several chemical agents, is most effective in operating the ISCO system to remediate 1,4-dioxane. The Pilot Study shall be performed in accordance with an EPA-approved Pilot Study Work Plan described in subparagraph b below. The ROD provides for a phased approach with an initial phase addressing a limited area to efficiently evaluate the effectiveness of the proposed treatment.

b. Pilot Study Work Plan: Settling Defendant shall submit to EPA and NDEQ a draft Pilot Study Work Plan for EPA review and approval, in accordance with Section XI of the CD. Settling Defendant shall prepare the Pilot Study Work Plan consistent with EPA's *Guide for Conducting Treatability Studies under CERCLA, Final* (October 1992).

c. Pilot Study Implementation and Evaluation: Upon EPA approval of the draft Pilot Study Work Plan, Settling Defendant shall implement the Pilot Study in accordance with the Final Pilot Study Work Plan. Following completion of the Pilot Study, Settling Defendant shall submit a Pilot Study Evaluation Report to EPA and NDEQ which shall state whether results of the Pilot Study demonstrate that ISCO is effective in treating the 1,4-dioxane plume and whether results indicate that an expanded system would be successful in treating the entire 1,4-dioxane plume. EPA may require Settling Defendant to supplement the Pilot Study Evaluation Report and perform additional studies. In the event that the Pilot Study Evaluation Report indicates that the ISCO chemicals that have been tested are not an effective remedy at LL1, and EPA agrees with that conclusion, Settling Defendant shall propose alternate remedies to EPA for consideration.

B. Remedial Design Work Plan (RDWP) – Settling Defendant shall submit to EPA and NDEQ a draft RDWP for EPA review and approval in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW.

1. The Draft RDWP shall include:

   a. Plans for implementing all Remedial Design activities in this SOW, in the RDWP, or determined necessary by EPA in order to develop the Remedial Design;

   b. A description of the overall management strategy for performing the Remedial Design, and the proposed general approach to contracting, construction, operation maintenance, and monitoring of the Remedial Action as necessary to implement the Work;

   c. A description of the responsibility and authority of all organizations and key personnel involved with the development of the Remedial Design;

   d. A description of any data gaps;

   e. A preliminary outline of drawings and specifications;

   f. A description of permitting, substantive permitting requirements, and other regulatory requirements; and

   g. A description of plans for, and a schedule for, coordination with, and access from, property owners affected by, or that may affect the Work.

2. The Final RDWP shall include comments provided by EPA and NDEQ on the Draft RDWP and incorporated into it.

C. Remedial Design – Settling Defendant shall submit a Draft Remedial Design for EPA review in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW.

1. The Draft Remedial Design shall include:

a. A design criteria report, as described in the *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995) and consistent with the RD/RA Handbook OSWER Directive 9355.0.4B (latest revision).

b. Preliminary drawings and specifications, including expansion of the ISCO system if the Pilot Study Evaluation determines such action appropriate;

c. A description of Settling Defendant's proposed RA contracting strategy;

d. Preliminary O&M Manual, with elements to address the requirements of Section IV.B.1.b of this Statement of Work in accordance with Operation and Maintenance in the Superfund Program, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001);

e. Preliminary O&M Plan, with elements to address the requirements of Section IV.B.1.b of this Statement of Work in accordance with Operation and Maintenance in the Superfund Program, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001);

f. Preliminary RA Schedule including expansion of monitoring at LL1; and

g. Supporting deliverables as specified in the RD Schedule.

2. Pre-Final Remedial Design – Settling Defendant shall respond to EPA and NDEQ comments on the Draft Remedial Design and submit a Pre-final Remedial Design which shall be a continuation and expansion of the Draft Remedial Design and shall also include a survey showing property boundaries and location of existing ICs.

3. Final Remedial Design – Upon approval by EPA of the Pre-Final Remedial Design, the Pre-Final becomes the Final Remedial Design.

4. After discussion prior to submittal and to the extent agreeable to EPA, the Draft Remedial Design Work Plan (Paragraph B above) and Remedial Design (paragraph C above) may be combined as one submission to EPA and NDEQ.

V. REMEDIAL ACTION FOR LL1

A. Draft Remedial Action Work Plan (RAWP) – Settling Defendant shall submit to EPA and NDEQ a Draft RAWP to EPA for review and approval in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW. The Draft RAWP shall include:

1. The identity of, contact information for, and description of the roles of the members of Settling Defendant's Remedial Action project team;

2. A proposed Remedial Action Construction Schedule;

3. Description of plans for satisfying permitting requirements, including obtaining permits for off-Site activity and for satisfying substantive requirements of permits for on-Site activity;

4. Summary of spill control plan or other plans to eliminate or reduce incidence of emissions during construction, and to minimize the impacts of such potential releases to adjacent environments;

5. Supporting deliverables as specified in the Remedial Design Schedule.

B. Final RAWP– Settling Defendant shall incorporate comments provided by EPA and NDEQ on the Draft RAWP. When resubmitted and approved by EPA in accordance with Section XI of the CD, this revised RAWP shall become the Final RAWP.

C. Remedial Action Implementation – Settling Defendant shall submit to EPA and NDEQ all reports and other deliverables required under the Final RAWP in accordance with the approved Schedule. Settling Defendant shall implement the Remedial Action and maintain operations until the Performance Standards and Remedial Action Objectives of the ROD are achieved.

D. Certification of Remedial Action – Settling Defendant shall submit a Monitoring Report which documents through scientific and statistical evaluation of monitoring data that the Performance Standard for 1,4-dioxane has been achieved and maintained. If EPA agrees with Settling Defendant's conclusion, based on the initial or any subsequent report submitted to EPA, EPA will so certify in writing to Settling Defendant.

VI. REMEDIAL DESIGN/REMEDIAL ACTION FOR ARDC LANDFILL

A. Pre-Design

1. Settling Defendant shall perform a PDI of the landfill cover in order to assess its condition.

2. Settling Defendant shall submit to EPA and NDEQ a report of the PDI with proposed changes to the cover to meet the requirements of Title 132, Chapter 3, Section 005. The PDI report shall be subject to the review and approval process set forth in Section XI of the CD and shall be submitted in accordance with the Schedule in Section VIII of this SOW.

B. RDWP – Settling Defendant shall submit to EPA and NDEQ a draft RDWP for review and approval in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW.

1. The RDWP shall include the following:

a. Plans for implementing all Remedial Design activities, including plans for designing a landfill cover that takes into account the findings of the approved report of the PDI and meets the requirements of Title 132, Chapter 3, Section 005; plans for designing a groundwater monitoring system that meets the requirements of Title 132, Chapter 3, Section 006 and Chapter 7, including a schedule for installation, and includes monitoring for 1,4-dioxane; and plans for designing a landfill gas monitoring system that meets the requirements of Title 132, Chapter 3, Sections 004.17C and 006 and NDEQ guidance, Landfill Gas Monitoring and Reporting (Attachment A to this SOW), including a schedule for installation.

b. Verification of the existence of ICs on property at the ARDC Landfill and property near the ARDC landfill owned by others. Identification of properties where soil and groundwater use restrictions are needed to prevent exposure to 1,4-dioxane and any other contaminants. Development and implementation of an Environmental Covenant that restricts use of property at and around the ARDC landfill.

c. A description of the overall management strategy for performing the Remedial Design, and the proposed general approach to contracting, construction, operation, maintenance, and monitoring of the Remedial Action as necessary to implement the Work;

d. A description of the responsibility and authority of all organizations and key personnel involved with the development of the Remedial Design;

e. A Construction Quality Assurance Plan;

f. A preliminary outline of drawings and specifications;

g. A description of permitting, substantive permitting requirements, and other regulatory requirements; and

h. A description of plans for, and a schedule for, coordination with, and access from, property owners affected by, or that may affect the Work.

2. Settling Defendant shall incorporate comments provided by EPA and NDEQ on the Draft RDWP which shall become the Final RDWP approval by EPA.

C. Remedial Design – Settling Defendant shall submit to EPA and NDEQ a Draft Remedial Design in accordance with the Final RDWP and the Schedule in Section VIII of this SOW. The Draft Remedial Design shall include preliminary drawings and specifications addressing the cap upgrade, groundwater monitoring system and the landfill gas monitoring system; a Field Sampling Plan, Construction Quality Assurance Project Plan, and a preliminary construction schedule. Following EPA approval of the Draft Remedial Design, Settling Defendant shall submit to EPA and NDEQ a Pre-final Remedial Design which shall be a continuation and expansion of the Draft Remedial Design. The Pre-final Remedial Design becomes the Final Remedial Design upon approval by EPA.

D. Closure Plan and Post-Closure Plan – Settling Defendant shall submit to EPA and NDEQ a closure plan and a post-closure plan that meet the requirements of Title 132, Chapter 3, Sections 005.10 and 006.04, respectively. The plans shall include schedules for implementation and shall be subject to review approval by EPA in accordance with Section XI of the CD.

E. RAWP – Settling Defendant shall submit to EPA and NDEQ a draft RAWP for review and approval by EPA in accordance with Section XI of the CD and the Schedule in Section VII of the SOW. Settling Defendant shall incorporate comments provided by EPA and NDEQ on the Draft RAWP which shall become the Final RAWP upon approval by EPA. The RAWP shall include the following:

1. A plan and schedule for installing groundwater monitoring well network in accordance with the approved design.

2. A plan and schedule for installing landfill gas monitoring well network in accordance with the approved design.

3. A plan and schedule for installing/enhancing the landfill cap in accordance with the approved design.

4. A plan and schedule for performing post closure care.

5. A plan for verification of the existence of ICs, identification of properties where soil and groundwater use restrictions are needed, and development and implementation of an Environmental Covenant that restricts use of property at and around the ARDC landfill.

F. Remedial Action Settling Defendant shall implement the Final RAWP. This shall include the performance of groundwater monitoring for 1,4-dioxane and for any other Title 132 constituents or indicator parameters; performance of landfill gas monitoring for explosive gases; installation/enhancement of the landfill cap; performance of post closure care; and development and implementation of any existing and new ICs, in accordance with the schedules in the Final RAWP.

VII. DELIVERABLES

Settling Defendant shall submit each of the following deliverables to EPA and NDEQ for approval in accordance with Section XI of the CD and the Schedule in Section VIII of this SOW or the schedule in the EPA approved Remedial Design Work Plan.

A. Quality Assurance Project Plan (QAPP). A QAPP must be submitted for the field work at LL1 and the ARDC Landfill for each project (groundwater monitoring, landfill gas monitoring, landfill cap enhancement). The QAPP may be submitted as a global document with separate sections clearly identified to address the specific needs for each project. The QAPP shall be consistent with Paragraph 24 of the CD or with the Uniform Federal Policy for Implementing Environmental Quality Systems (UFP-QS), the Uniform Federal Policy for Quality Assurance Project Plans, (UFP-QAPP) Manual, the UFP-QAPP Workbook, and the UFP-QAPP Compendium to address sampling procedures, sample custody, analytical

procedures, and data reduction, validation, reporting and personnel qualifications. The QAPP may include Field-Based Analytical Methods, if appropriate and scientifically defensible.

B. Construction Quality Assurance/Quality Control Plan (CQAP). The CQAP shall be included in the RA Work Plan for LL1 and the ARDC Landfill. The CQAP may be submitted as a global document with separate sections clearly identified to address the specific needs for each project. The CQAP shall describe: (a) responsibilities of, the organizations and personnel implementing the QA/QC; (b) verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the QA/QC; (c) industry standards and technical specifications used in implementing the QA/QC; (d) procedures for tracking construction deficiencies from identification through corrective action; (e) procedures for documenting all QA/QC activities; and (f) procedures for retention of documents and for final storage of documents.

C. Field Sampling Plan (FSP). A FSP must be submitted for the field work at LL1 and the ARDC Landfill where a FSP is required for each project (groundwater monitoring, landfill gas monitoring, landfill cap enhancement). The 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. Settling Defendant shall develop the FSP in accordance with *Guidance for Conducting Remedial Investigations and Feasibility Studies*, EPA/540/G-89/004 (Oct. 1988).

D. Health and Safety Plan (HSP). A HSP must be submitted for the field work at LL1 and at the ARDC Landfill (groundwater monitoring, landfill monitoring, cap enhancement). The HSP may be submitted as a global document with separate sections clearly identified to address the specific needs for each project. The HSP 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. The HSP must comply with OSHA requirements under 29 C.F.R. §§ 1910 and 1926. The HSP also must address monitoring and control measures to protect any persons who live or work nearby during the Work.

E. O&M Manual. The O&M Manual shall be included in the RAWP for LL1. The O&M Manual serves as a guide to the purpose and function of the equipment and systems that make up the remedy. Settling Defendant 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).

F. O&M Plan. The O&M Plan shall be included in the RAWP for LL1. The O&M Plan describes the long-term operation and maintenance of the RA. Settling Defendant 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 a description of: (a) instrumentation and monitoring; (b) routine monitoring and laboratory testing; (c) verification sampling procedures, if Performance Standards are exceeded during routine monitoring; (d) corrective action to be implemented in the event that Performance Standards are exceeded and a schedule for implementation; and (f) records and reports that will be generated during the O&M.

G. Closure Plan. The Closure Plan shall be submitted for the ARDC Landfill. The Closure Plan consists of the elements set forth in Title 132, Chapter 3, Section 005.10.

H. Post-Closure Plan. The Post-Closure Plan shall be submitted for the ARDC Landfill. The Post-Closure Plan consists of the elements set forth in Title 132, Chapter 3, Section 006.04. The Post-Closure Plan describes the monitoring and maintenance activities to be performed at the landfill after the cap has been installed and the groundwater and landfill gas monitoring systems are in place. The plan shall also include the frequency of the activities. Upon completion of the ARDC landfill cap, the parties intend that oversight of the closure and post-closure plan may be taken over by the NDEQ and that will retain its enforcement authority under the Consent Decree.

VIII. SCHEDULE

LOAD LINE 1

PDI Work Plan	Within 90 days of Effective Date
PDI Investigation	Within 60 days of EPA approval of PDI Work Plan
PDI Eval. Rpt.	Within 180 days of EPA approval of PDI Work Plan
Pilot Study Work Plan	Within 30 days of approval of PDI Eval. Rpt.
Startup of Pilot Study	Within 60 days of EPA approval of Pilot Study Work Plan
Pilot Study Eval. Rpt.	Within 9 mos. of startup of Pilot Study
RDWP	Within 45 days of EPA approval of Pilot Study Eval. Rpt.
Draft RD	Within 45 days of EPA approval of Draft RDWP
Pre-final RD	Within 45 days of EPA comments on Draft RD
Draft RAWP	Within 30 days of EPA approval of Draft Remedial Design
Remedial Action Implementation	Initiated within 30 days of approval of Final Remedial Action Work Plan
Monitoring Report	Within 30 days of attaining the performance standards and remedial action objectives of the ROD are achieved

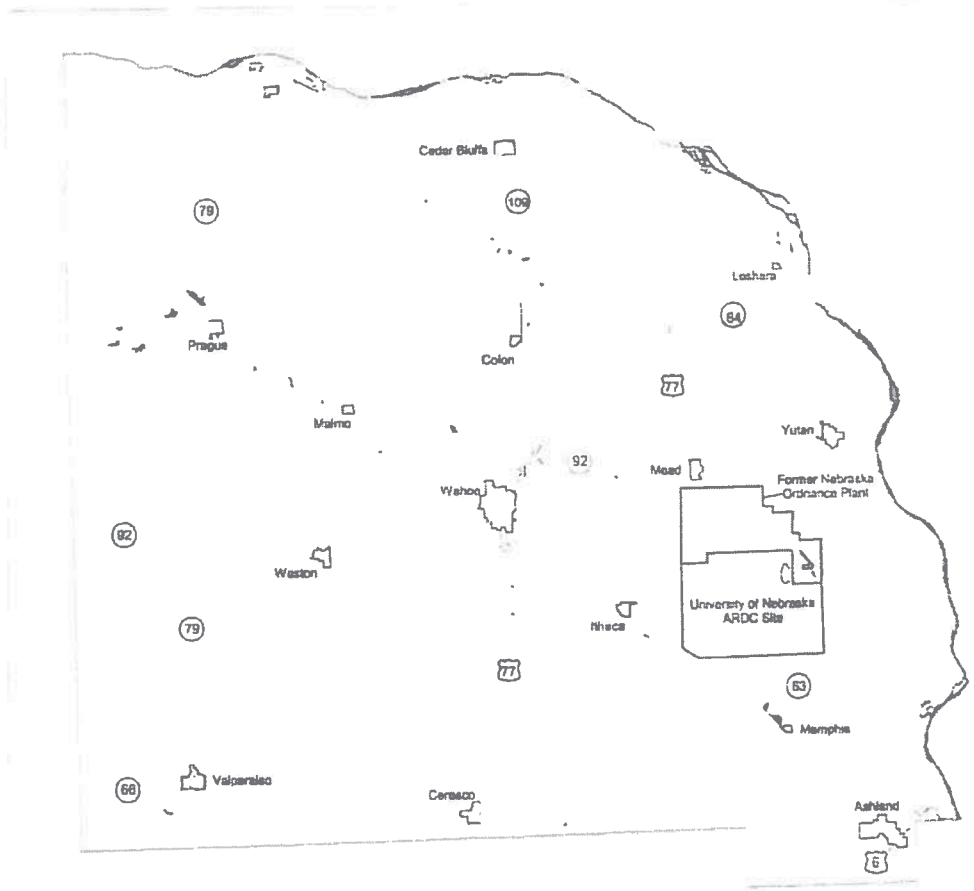
ARDC LANDFILL

Complete PDI of landfill cap	Within 180 days of Effective Date
PDI Report	Within 30 days of completion of PDI
Draft RDWP	Within 45 days of approval of PDI Report
Draft Remedial Design	Within 45 days of approval of RDWP
Pre-Final Remedial Design	Within 45 days of approval of Draft Remedial Design
Draft RAWP	Within 30 days of approved RD
Remedial Action	Consistent with schedule in Final Remedial Design
Closure Plan	Consistent with schedule in Final Remedial Design
Post-Closure Plan	Consistent with schedules in Final Remedial Design
Gas Monitoring Report	Quarterly beginning 30 days after installation of gas monitoring system and continuing through post-closure
Groundwater Monitoring Report	Semi-annually during closure and post-closure

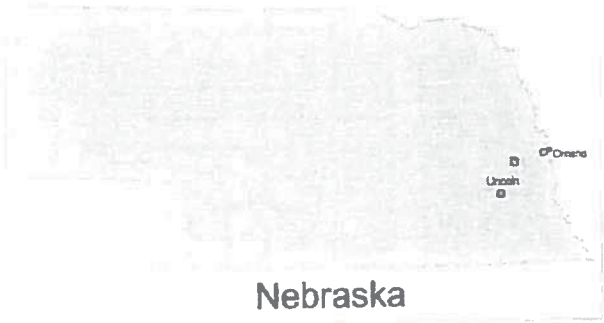
OTHER REQUIRED SUBMISSIONS

Notify EPA of Sup. Contractor	Within 10 days of lodging of CD
Notify EPA of Proj. Coordinator	Within 20 days of lodging of CD
QAPP	Prior to any monitoring event
Force majeure report	Within 5 days of event causing delay in performance
Quarterly Progress Reports	Beginning 3 mos. after Effective Date; every 3 mos. thereafter
Draft Environmental Covenants	Within 90 days of Effective Date
Record Environmental Covenants	Within 30 days after approval of Draft Environmental Covenants
Provide EPA certified copies of Environmental Covenants	Within 60 days of recording Environmental Covenants
Draft notice on real estate deed	Within 90 days of Effective Date
Record notice on real estate deed	Within 30 days of EPA approval of draft notice
Provide EPA certified copy of notice	Within 60 days of recording
Provide title ins. policy to EPA	Within 60 days of recording Environmental Covenants
Verify existing ICs	Within 60 days of Effective Date
Establish insurance	Within 30 days of on-Site Work
Provide certificate of insurance & copy of policy	Within 15 days after commencing on-Site Work and annually thereafter on the anniversary of the Effective Date until the remedial action is complete
Emergency Notification Report	Within 20 days of onset of emergency
Emergency Response Report	Within 30 days after conclusion of emergency
Notice of Sample Collection	Within 28 days of Sample Collection

APPENDIX C



Saunders County Inset



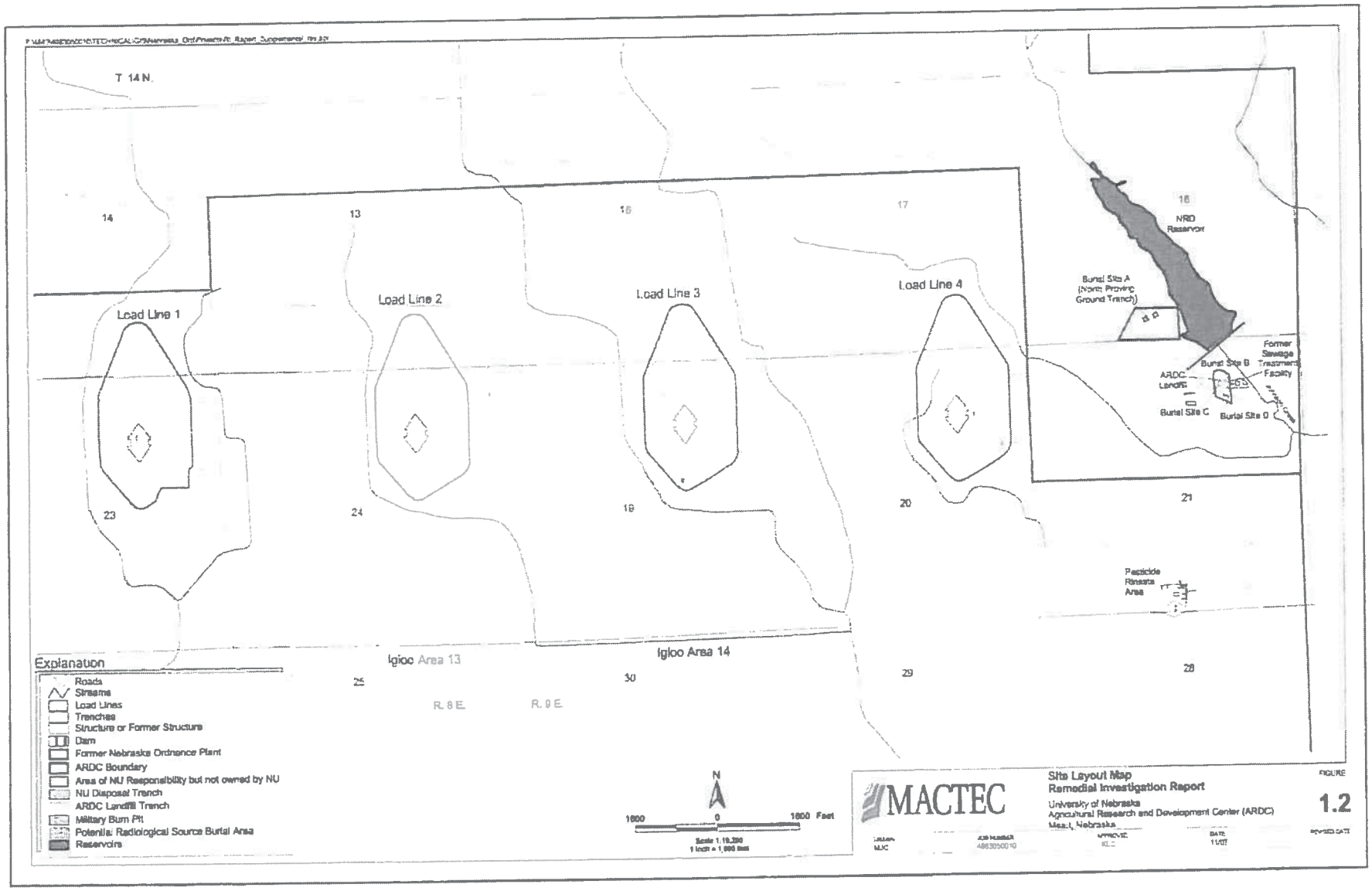
Nebraska

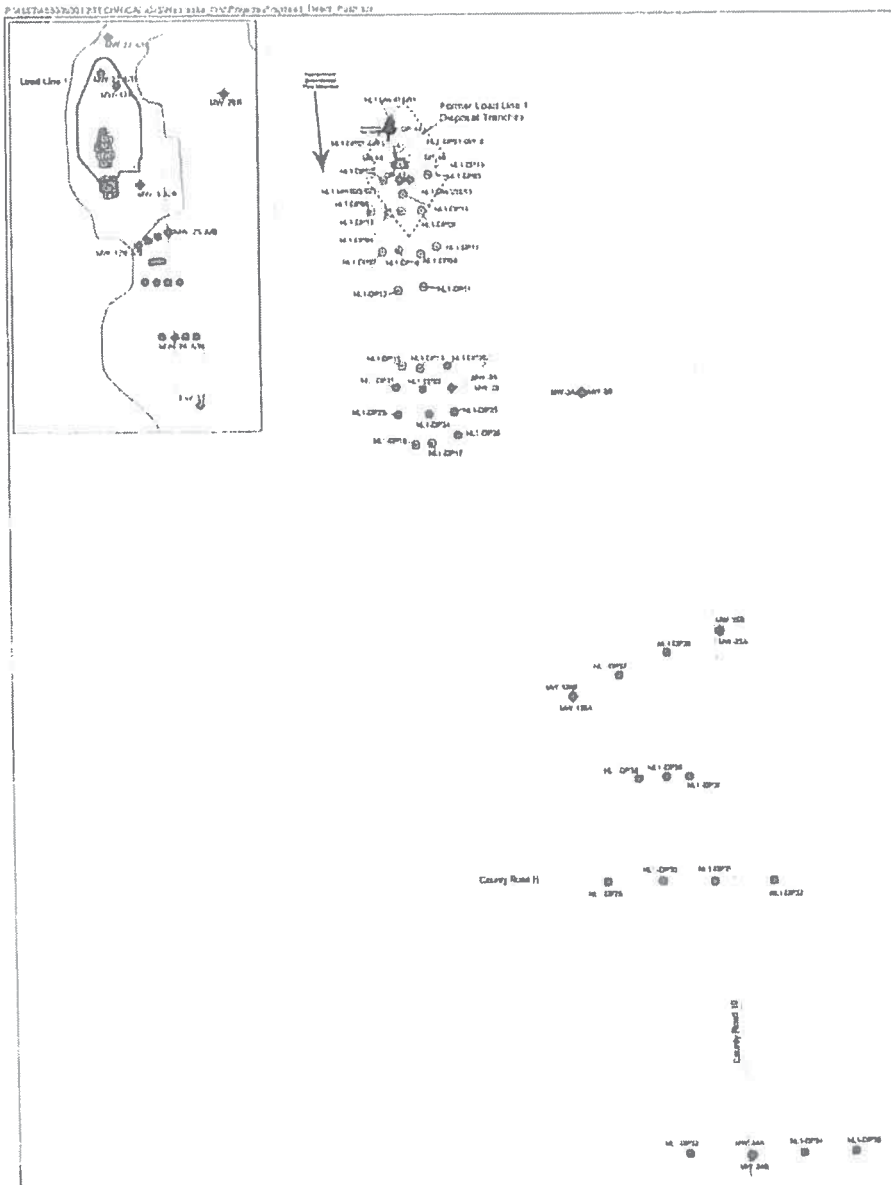
MACTEC

ARDC Site Location Map
Remedial Investigation Report
University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead, Nebraska

FIGURE
1.1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
MJC		KLC	11/07	


T 14 N.
14
13
18
17
16
NRD Reservoir
Load Line 1
Load Line 2
Load Line 3
Load Line 4
Burial Site A (North Proving Ground Trench)
Former Sewage Treatment Facility
ARDC Landfill
Burial Site B
Burial Site C
Burial Site D
23
24
19
20
21
Pesticide Rinsate Area
Igloo Area 13
Igloo Area 14
25
30
29
28
R. 8 E.
R. 9 E.
Explanation
Roads
Streams
Load Lines
Trenches
Structure or Former Structure
Dam
Former Nebraska Ordnance Plant
ARDC Boundary
Area of NU Responsibility but not owned by NU
NU Disposal Trench
ARDC Landfill Trench
Military Burn Pit
Potential Radiological Source Burial Area
Reservoirs
N
1800
0
1800 Feet
Scale 1:19,200
1 inch = 1,600 feet
MACTEC
Site Layout Map
Remedial Investigation Report
University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead, Nebraska
FIGURE
1.2



Explanation

- 2010-2011 Supplemental Direct Push Sample Location
- Phase I RI Direct Push Sample Location
- Phase II RI Monitoring Well Location
- Phase II Supplemental Direct Push Sample Location
- Previous Monitoring Well Location
- Previous Direct Push Sample Location (URS, July 2003)
- Former NOP Feature
- Roads
- Streams
- Lead Lines
- NU Disposal Trench

Concentrations in micrograms per liter (ug/l)

N

800 0 800 Feet

Scale 1 1,200
1 Inch = 800 Feet

MACTEC

DRAWN: MJC

JOB NUMBER: 6903505012

APPROVED: AJC

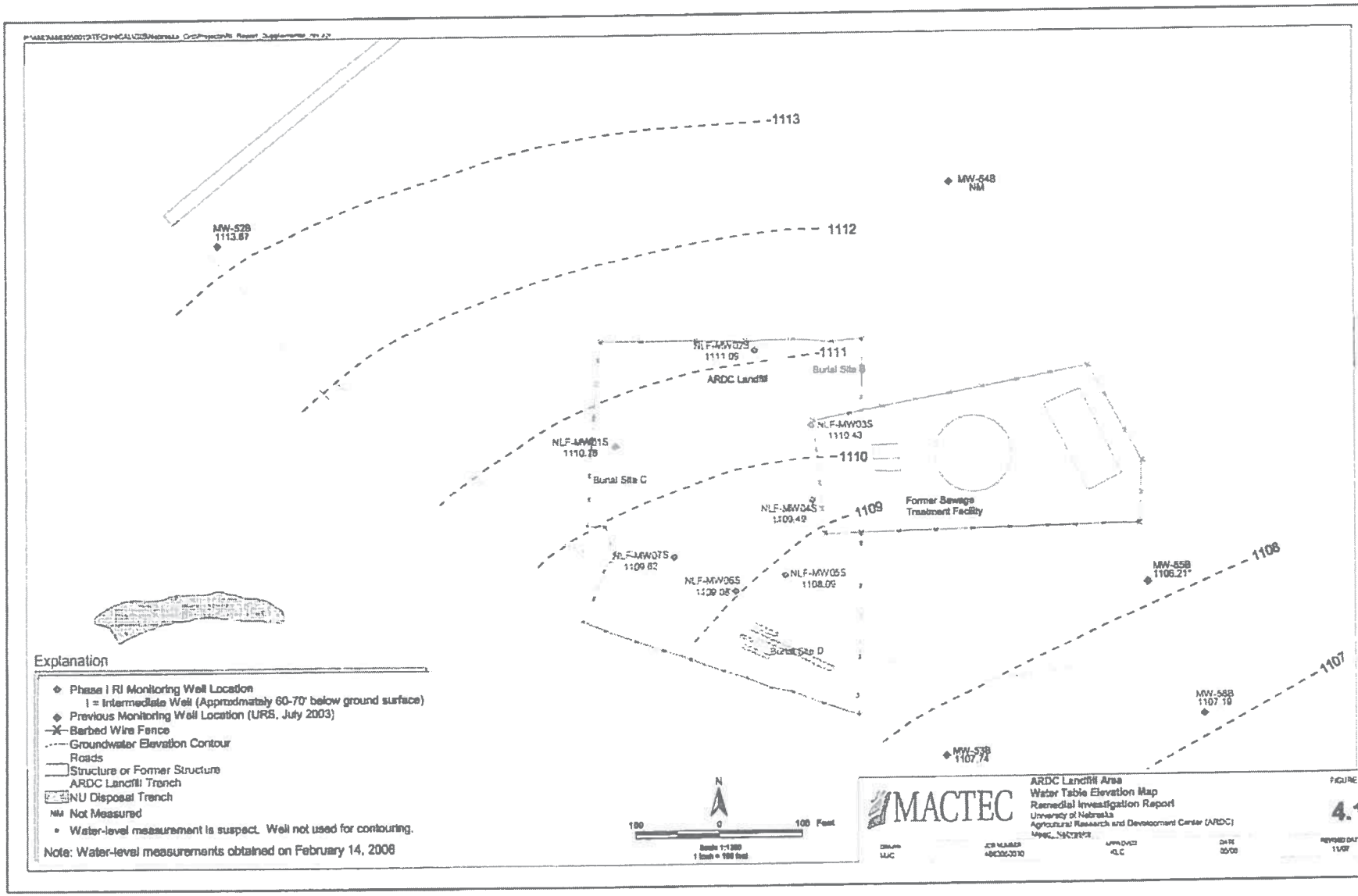
DATE: 9/19

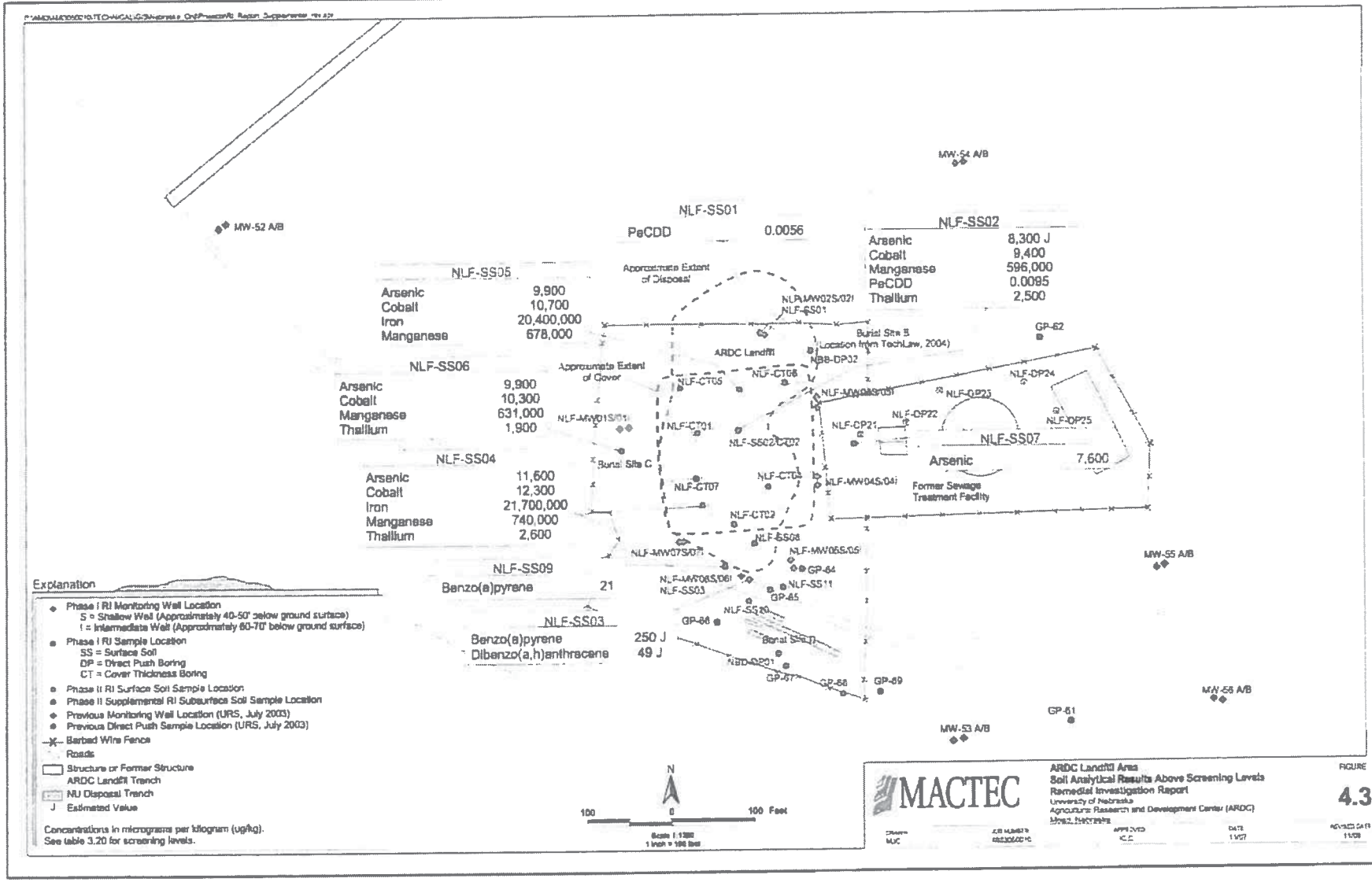
REVISED DATE: 03/11

Lead Line 1
Sampling Locations

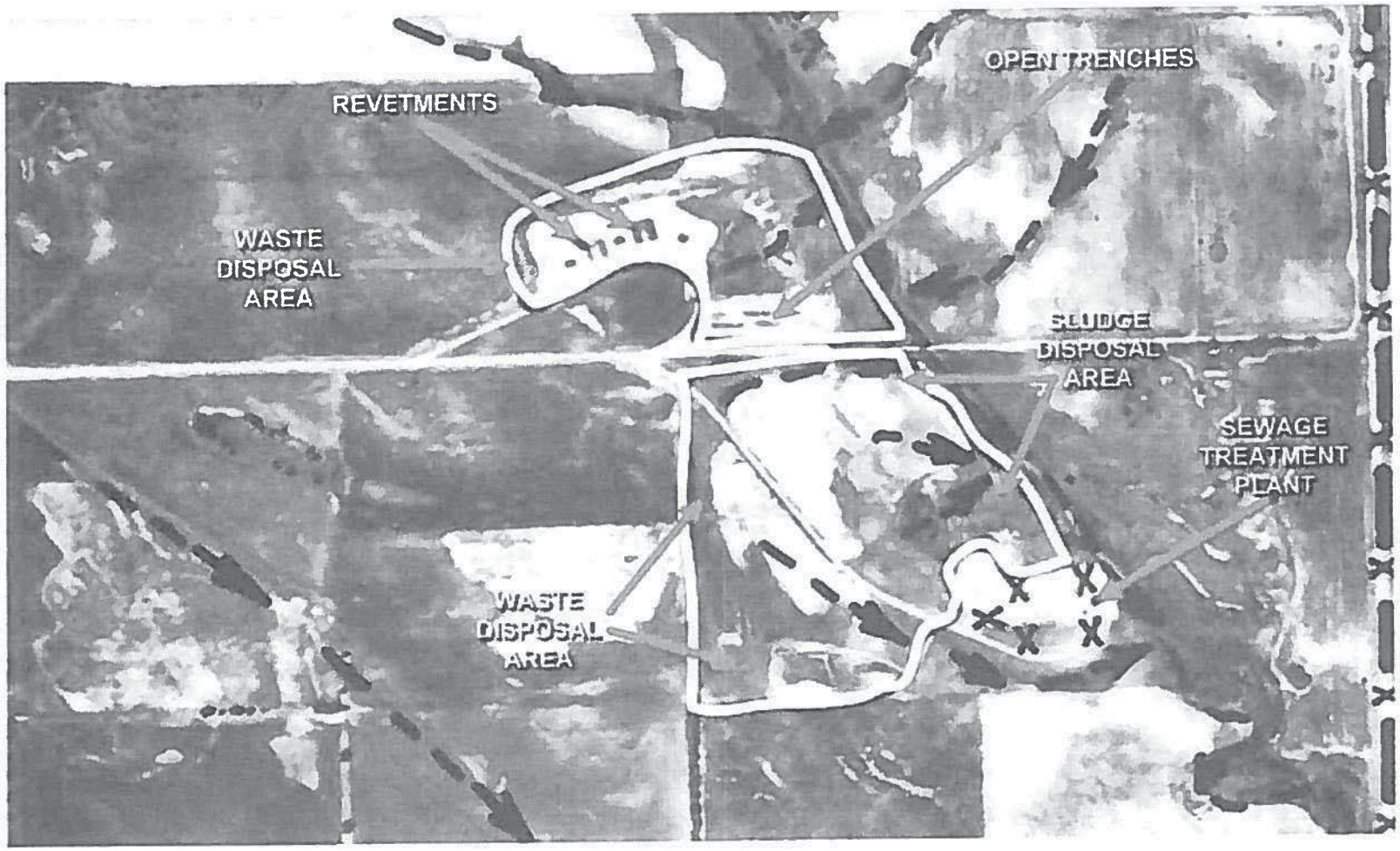
University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead, Nebraska

FIGURE
3.7


1113
1112
1111
1110
1109
1107
MW-54B
NM
MW-52B
1113.87
NLF-MW02S
1111.05
ARDC Landfill
Burial Site B
NLF-MW03S
1110.43
NLF-MW01S
1110.78
Burial Site C
NLF-MW04S
1109.49
Former Sewage
Treatment Facility
NLF-MW07S
1109.82
NLF-MW06S
1109.05
NLF-MW05S
1108.09
Burial Site D
MW-55B
1106.21*
MW-56B
1107.19
MW-53B
1107.74
Explanation
Phase I RI Monitoring Well Location
I = Intermediate Well (Approximately 60-70' below ground surface)
Previous Monitoring Well Location (URS, July 2003)
Barbed Wire Fence
Groundwater Elevation Contour
Roads
Structure or Former Structure
ARDC Landfill Trench
NU Disposal Trench
NM Not Measured
Water-level measurement is suspect. Well not used for contouring.
Note: Water-level measurements obtained on February 14, 2008
N
100
0
100 Feet
Scale 1:1200
1 inch = 100 feet
MACTEC
ARDC Landfill Area
Water Table Elevation Map
Remedial Investigation Report
University of Nebraska
Agricultural Research and Development Center (ARDC)
FIGURE
4.1
DRAWN
LLC
JOB NUMBER
APPROVED
KLC
DATE
05/08
REVISED DATE
11/07


NLF-SS01
PeCDD 0.0056
NLF-SS02
Arsenic 8,300 J
Cobalt 9,400
Manganese 596,000
PeCDD 0.0095
Thallium 2,500
NLF-SS05
Arsenic 9,900
Cobalt 10,700
Iron 20,400,000
Manganese 678,000
NLF-SS06
Arsenic 9,900
Cobalt 10,300
Manganese 631,000
Thallium 1,900
NLF-SS04
Arsenic 11,600
Cobalt 12,300
Iron 21,700,000
Manganese 740,000
Thallium 2,600
NLF-SS09
Benzo(a)pyrene 21
NLF-SS03
Benzo(a)pyrene 250 J
Dibenzo(a,h)anthracene 49 J
NLF-SS07
Arsenic 7,600
Approximate Extent of Disposal
Approximate Extent of Cover
ARDC Landfill
Burial Site B
Location from TechLaw, 2004)
Burial Site C
Former Sewage Treatment Facility
MW-52 A/B
MW-54 A/B
MW-55 A/B
MW-53 A/B
GP-62
GP-64
GP-65
GP-66
GP-67
GP-68
GP-69
GP-61
Explanation
Phase I RI Monitoring Well Location
S = Shallow Well (Approximately 40-50' below ground surface)
I = Intermediate Well (Approximately 60-70' below ground surface)
Phase I RI Sample Location
SS = Surface Soil
DP = Direct Push Boring
CT = Cover Thickness Boring
Phase II RI Surface Soil Sample Location
Phase II Supplemental RI Subsurface Soil Sample Location
Previous Monitoring Well Location (URS, July 2003)
Previous Direct Push Sample Location (URS, July 2003)
Barbed Wire Fence
Roads
Structure or Former Structure
ARDC Landfill Trench
NU Disposal Trench
J Estimated Value
Concentrations in micrograms per kilogram (ug/kg).
See table 3.20 for screening levels.
N
100 0 100 Feet
MACTEC
ARDC Landfill Area
Soil Analytical Results Above Screening Levels
Remedial Investigation Report
University of Nebraska
Agriculture Research and Development Center (ARDC)
FIGURE
4.3

P:\46630500101\TECH\RCA\RI Report May 2008\Figures



N

600 0 600 Feet

1 inch = ~600 feet

MACTEC

1959 Aerial Photograph Showing Historical Disposal Areas in the Vicinity of the Sewage Treatment Plant

University of Nebraska
Agricultural Research and Development Center (ARDC)
Mead Nebraska

FIGURE **4.11**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PAM	46630500101 4.03	KLC	6/26/08	

APPENDIX D

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

[Grantor]
[Address]

Space Above for Record's Use Only

ENVIRONMENTAL COVENANT

This Environmental Covenant is executed this ____ day of _____, 2014, by the BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA ("NU"), Grantor and Holder/Grantee, pursuant to the Nebraska Uniform Environmental Covenants Act, Neb. Rev. Stat. §§76-2601 to 76-2613.

RECITALS:

A. NU is the Grantor and owner of real property located in Saunders County, Nebraska, depicted in the map attached and legally described as: [to be confirmed] (the "Property"). NU is also the Holder/Grantee of this Environmental Covenant under Neb. Rev. Stat. §§ 76-2602() and 76-2603(a) of the Act.

B. The Property has been used for a disposal area and was the site of releases of certain hazardous substances, pollutants or contaminants.

C. The Property is the subject of an environmental remedial action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act and the Resource Conservation and Recovery Act.

D. The Agencies, as defined in Neb. Rev. Stat. §76-2602, are the Nebraska Department of Environmental Quality ("NDEQ") and the United States Environmental Protection Agency – Region VII ("USEPA").

E. Prior environmental response activities conducted by NU with respect to the Property are documented in the administrative record for the former Nebraska Ordnance Plant Superfund Site which is available to the public and located in the Mead Public Library, 316 South Vine Street, Mead, Nebraska 68041. The selected environmental remedial action for the Property is documented in a Record of Decision signed on September 27, 2013, and is part of the administrative record.

NOW, THEREFORE,

Grantor hereby declares that the Property will hereinafter be bound by, held, sold and conveyed subject to the following terms, conditions, obligations, and restrictions set

forth herein, which will run with the land, in perpetuity, unless amended or terminated pursuant to Paragraph 11 below.

1. Representations and Warranties. The Grantor warrants to the other signatories to this Covenant that:

a. The Grantor is the sole fee title owner of the Property;
b. The Grantor holds sufficient fee title to the Property to grant the rights and interests described in this Environmental Covenant free of any conflicting legal and equitable claims; and
c. The Grantor has identified all other persons holding legal or equitable interests, including but not limited to contract buyers, mortgage holders, other consensual lien holders, and lessees and secured their consent.

2. Purpose. The purpose of this Environmental Covenant is to ensure protection of human health and the environment by minimizing the potential for exposure to contamination that remains on the Property and to ensure that the Property is not developed, used, or operated in a manner incompatible with the approved remediation.

3. Running with the Land. The Environmental Covenant is perpetual and conveys to the Holder/Grantee real property rights that will run with the land, and gives to the Agencies the right to enforce the activity and use limitations described in Paragraph 4. The terms, conditions, obligations, and limitations in this Environmental Covenant are binding on the Grantor, its successors, heirs, executors, assigns and transferees, and all persons, corporations or other entities obtaining or succeeding to any right, title or interest in the Property after the effective date of this Environmental Covenant. All real estate, lots, or parcels located within the Property are subject to the terms, conditions, obligations and limitations in this Environmental Covenant. Acceptance of any conveyance, transfer, lease or sublease of the Property, or part thereof, will bind each transferee, its heirs, executors, successors, transferees and assigns to the terms, conditions, obligations, and limitations during their respective period of ownership or occupancy, as applicable. Notice of any transfer of any interest in the Property must be promptly provided to the Agency by the transferor. The Grantor is bound by the terms, conditions, obligations and limitations in this Environmental Covenant only during its period of ownership or occupancy after the effective date. This Environmental Covenant in no way amends, modifies, limits or releases the Grantor from its duties and obligations under the approved environmental response project or action.

4. Activity and Use Limitations. The Property is subject to the following activity and use limitations:

a. The property shall not be used for residential purposes, including, but not limited to, schools, playgrounds, and child care facilities.

b. The installation of wells or other penetration of the groundwater bearing units at the Property are prohibited, except for investigative purposes or as otherwise authorized by the Agencies.

c. The hazardous substance, 1,4-dioxane, may be present in the soils at 20 feet or more below the ground surface ("bgs"). Any party, prior to disturbing soils at 20 feet or more bgs, shall develop a protocol for testing and proper management of any contaminated environmental media that may be encountered. The protocol will be provided to the Agencies for review and approval prior to the implementation.

5. Reserved Rights of Grantor. The Grantor hereby reserves unto itself and its successors all rights and privileges in and to the use of the Property which are not incompatible with the limitations granted herein.

6. Compliance Reporting. One year from the effective date of this Environmental Covenant, and on an annual basis thereafter until such time as this Environmental Covenant is terminated, the then-current fee simple owner of the Property shall submit to the Agencies written documentation verifying that the activity and use limitations remain in place and are being complied with. Any signatory to this Environmental Covenant shall notify the Agencies as soon as possible of conditions that would constitute a breach of the activity and use limitations.

7. Enforcement. The terms of this Environmental Covenant may be enforced in a civil action for injunctive or other equitable relief by the signatories and those persons authorized by and in accordance with Neb. Rev. Stat. §76-2611. Failure to exercise such rights of enforcement will in no event bar subsequent enforcement by any signatory and shall not be deemed a waiver of the signatory's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict or limit the Agencies from exercising any authority under applicable law. The prevailing party in any action to enforce any provision of this Environmental Covenant is entitled to recover all costs of such action, including reasonable attorney fees. Any Holder/Grantee and the Agencies shall be entitled to recover damages for violations of this Environmental Covenant or for any injury to the remedial action required by the Agencies, to the public or to the environment protected by this Environmental Covenant.

8. Reopening. The signatories acknowledge that failure of the activity and use limitations to serve their intended purpose, including the prevention of contamination exposure, could result in the Agencies reopening their review and regulation of the contaminant condition on the Property as provided in Neb. Rev. Stat. §76-2609.

9. Rights of Access. The Grantor and any then-current owner hereby grant to the Agencies, their agents, contractors, and employees, the right of access to the Property to monitor compliance with the terms, conditions, obligations, and limitations of this Environmental Covenant. Nothing in this Environmental Covenant shall limit or

otherwise affect the Agencies' right of entry and access or the Agencies' authority to take response actions under applicable law.

10. Notice Upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property, including but not limited to, deeds, leases and mortgages, shall contain a notice of the activity and use limitations set forth in Paragraph 4 of this Environmental Covenant. The current owner shall provide the recorded location of this Environmental Covenant. The notice shall be in substantially the form set forth below. Within thirty (30) days of the date any such instrument of conveyance is executed, the Grantor or then-owner must provide the Agencies with a certified copy of said instrument and its recording reference in the Saunders County Register of Deeds.

a. NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT DATED _____, RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS OF SAUNDERS COUNTY, NEBRASKA ON _____, IN [DOCUMENT _____, BOOK _____, PAGE ____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS: i) The property shall not be used for residential purposes, including, but not limited to, schools, playgrounds, and child care facilities.
ii) The installation of wells or other penetration of the groundwater bearing units at the Property are prohibited, except for investigative purposes or as otherwise authorized by the Agencies.
iii) The hazardous substance, 1,4-dioxane, may be present in the soils at 20 feet or more below the ground surface ("bgs"). Any party, prior to disturbing soils at 20 feet or more bgs, shall develop a protocol for testing and proper management of any contaminated environmental media that may be encountered. The protocol will be provided to the Agencies for review and approval prior to the implementation.

11. Waiver of Certain Defenses. The persons and entities bound by this Environmental Covenant hereby waive any defense to the enforcement of this Environmental Covenant based on laches, estoppel, statute of limitations, or prescription.

12. Amendment and Termination. Amendment or termination of this Environmental Covenant shall comply with Neb. Rev. Stat. §76-2610. The terms of this Environmental Covenant may be modified or terminated by written consent of the Director of the Agencies, the then current fee simple title owner, and all original signatories unless exempted by Neb. Rev. Stat. §76-2610. The amendment or termination is not effective until the document evidencing consent of all necessary persons is properly recorded. If not by consent, any amendment or termination of this Environmental Covenant shall be as provided by Neb. Rev. Stat. §76-2609 and such additional terms as specified in this Environmental Covenant. As provided in Neb. Rev. Stat. §76-2610(c), except for an assignment undertaken pursuant to a

governmental reorganization, assignment of an environmental covenant to a new holder is an amendment.

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Captions. The captions in this Environmental Covenant are for convenience and reference only and are not a part of this instrument and shall have no effect upon construction or interpretation.

15. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Nebraska.

16. Recordation. Within thirty (30) days after the date of the Agency's approval of this Environmental Covenant, the Grantor shall record the Environmental Covenant, in the same manner as a deed to the property, with the Saunders County Register of Deeds.

17. Effective Date. The effective date of this Environmental Covenant is the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the Saunders County Register of Deeds.

17. Distribution of Environmental Covenant. Within 60 days of the effective date, the Grantor shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to the Agencies.

18. Notice. Unless otherwise notified in writing by the Agency, any document or communication required by this Environmental Covenant shall be submitted to:

Remediation Section
Waste Management Division
Nebraska Department of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

U.S. Environmental Protection Agency – Region VII
Mr. Sandeep Mehta, Superfund Division
11201 Renner Blvd.
Lenexa, KS 66219

GRANTOR:

IN WITNESS WHEREOF, Grantor, as the owner of the Property and the Holder of this Environmental Covenant, has caused this Environmental Covenant to be executed on this ____ day of _____, 20__.

BOARD OF REGENTS OF THE UNIVERSITY OF NEBRASKA

By: _____

_____
Title

STATE OF NEBRASKA)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who acknowledged said Environmental Covenant on behalf of Grantor.

_____
Notary Public

(SEAL)

AGENCY:

IN WITNESS WHEREOF, NDEQ, as an Agency defined in Neb. Rev. Stat. § 76-2602(2), is not a party to this Environmental Covenant and does not acquire or assume any liability, obligation, or responsibility under state or federal law by virtue of signing this Environmental Covenant, nor is NDEQ a Holder under Neb. Rev. Stat. §§ 76-2602(6) and 76-2603(a).

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: _____

_____
Director

STATE OF NEBRASKA)
) **ss.**
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who acknowledged said Environmental Covenant on behalf of the Agency.

_____
Notary Public

(SEAL)

U. S. ENVIRONMENTAL PROTECTION AGENCY- REGION VII:

IN WITNESS WHEREOF, USEPA, as an Agency defined in Neb. Rev. Stat. § 76-2602(2), is not a party to this Environmental Covenant and does not acquire or assume any liability, obligation, or responsibility under state or federal law by virtue of signing this Environmental Covenant, nor is USEPA a Holder under Neb. Rev. Stat. §§ 76-2602(6) and 76-2603(a).

U.S. ENVIRONMENTAL PROTECTION AGENCY- REGION VII

By: _____
Cecilia Tapia, Director
Superfund Division

STATE OF KANSAS)
) **ss.**
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who acknowledged said Environmental Covenant on behalf of the Agency.

_____
Notary Public

(SEAL)

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

[Grantor]
[Address]

Space Above for Record's Use Only

ENVIRONMENTAL COVENANT

This Environmental Covenant is executed this ___ day of _____, 2014, by the UNITED STATES OF AMERICA("USA"), Grantor and Holder/Grantee, pursuant to the Nebraska Uniform Environmental Covenants Act, Neb. Rev. Stat. §§76-2601 to 76-2613.

RECITALS:

A. USA is the Grantor and owner of real property located in Saunders County, Nebraska, depicted in the map attached (the "Property") and legally described as:

[to be confirmed]

USA is also the Holder/Grantee of this Environmental Covenant under Neb. Rev. Stat. §§ 76-2602() and 76-2603(a) of the Act.

B. The Property has been used for a disposal area and was the site of releases of certain hazardous substances, pollutants or contaminants.

C. The Property is the subject of an environmental remedial action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act and the Resource Conservation and Recovery Act.

D. The Agencies, as defined in Neb. Rev. Stat. §76-2602, are the Nebraska Department of Environmental Quality ("NDEQ") and the United States Environmental Protection Agency – Region VII ("USEPA").

E. Prior environmental response activities conducted with respect to the Property are documented in the administrative record for the former Nebraska Ordnance Plant Superfund Site which is available to the public and located in the Mead Public Library, 316 South Vine Street, Mead, Nebraska 68041. The selected environmental remedial action for the Property is documented in a Record of Decision signed on September 27, 2013, and is part of the administrative record.

NOW, THEREFORE,

Grantor hereby declares that the Property will hereinafter be bound by, held, sold and conveyed subject to the following terms, conditions, obligations, and restrictions set forth herein, which will run with the land, in perpetuity, unless amended or terminated pursuant to Paragraph 11 below.

1. Representations and Warranties. The Grantor warrants to the other signatories to this Covenant that:

a. The Grantor is the sole fee title owner of the Property;
b. The Grantor holds sufficient fee title to the Property to grant the rights and interests described in this Environmental Covenant free of any conflicting legal and equitable claims; and
c. The Grantor has identified all other persons holding legal or equitable interests, including but not limited to contract buyers, mortgage holders, other consensual lien holders, and lessees and secured their consent.

2. Purpose. The purpose of this Environmental Covenant is to ensure protection of human health and the environment by minimizing the potential for exposure to contamination that remains on the Property and to ensure that the Property is not developed, used, or operated in a manner incompatible with the approved remediation.

3. Running with the Land. The Environmental Covenant is perpetual and conveys to the Holder/Grantee real property rights that will run with the land, and gives to the Agencies the right to enforce the activity and use limitations described in Paragraph 4. The terms, conditions, obligations, and limitations in this Environmental Covenant are binding on the Grantor, its successors, heirs, executors, assigns and transferees, and all persons, corporations or other entities obtaining or succeeding to any right, title or interest in the Property after the effective date of this Environmental Covenant. All real estate, lots, or parcels located within the Property are subject to the terms, conditions, obligations and limitations in this Environmental Covenant. Acceptance of any conveyance, transfer, lease or sublease of the Property, or part thereof, will bind each transferee, its heirs, executors, successors, transferees and assigns to the terms, conditions, obligations, and limitations during their respective period of ownership or occupancy, as applicable. Notice of any transfer of any interest in the Property must be promptly provided to the Agency by the transferor. The Grantor is bound by the terms, conditions, obligations and limitations in this Environmental Covenant only during its period of ownership or occupancy after the effective date. This Environmental Covenant in no way amends, modifies, limits or releases the Grantor from its duties and obligations under the approved environmental response project or action.

4. Activity and Use Limitations. The Property is subject to the following activity and use limitations.

a. The Property shall be fenced with a minimum 4-feet high fence with a barbed wire strand at every foot unless otherwise approved by the Agencies. Metal signs shall be placed securely on each side of the fence which states the following.

WARNING NO TRESPASSING:
Hazardous Substances Beneath the Surface of the Fenced Area

b. If the landfill cap is penetrated to a depth that has a reasonable degree of scientific probability of interfering with or impairing that integrity of the capping system, additional engineering steps will be taken to protect human health and the environment until the integrity of the capping system is restored.

c. Any party, prior to a planned penetration of the landfill capping system, shall develop a protocol for testing and proper management of any contaminated environmental media that may be encountered. The protocol will be provided to the Agencies for review and approval prior to the implementation.

d. No actions shall be allowed on the Property that will have a reasonable degree of scientific probability of altering the drainage patterns such that the integrity of the capping system would be compromised, or resulting in unstable slopes on the Property.

e. The installation of wells or other penetration of the groundwater bearing units at the Property are prohibited, except for investigative purposes or as otherwise authorized by the Agencies.

5. Reserved Rights of Grantor. The Grantor hereby reserves unto itself and its successors all rights and privileges in and to the use of the Property which are not incompatible with the limitations granted herein.

6. Compliance Reporting. One year from the effective date of this Environmental Covenant, and on an annual basis thereafter until such time as this Environmental Covenant is terminated, the then-current fee simple owner of the Property shall submit to the Agencies written documentation verifying that the activity and use limitations remain in place and are being complied with. Any signatory to this Environmental Covenant shall notify the Agencies as soon as possible of conditions that would constitute a breach of the activity and use limitations.

7. Enforcement. The terms of this Environmental Covenant may be enforced in a civil action for injunctive or other equitable relief by the signatories and those persons authorized by and in accordance with Neb. Rev. Stat. §76-2611. Failure to exercise such rights of enforcement will in no event bar subsequent enforcement by any

signatory and shall not be deemed a waiver of the signatory's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict or limit the Agencies from exercising any authority under applicable law. The prevailing party in any action to enforce any provision of this Environmental Covenant is entitled to recover all costs of such action, including reasonable attorney fees. Any Holder/Grantee and the Agencies shall be entitled to recover damages for violations of this Environmental Covenant or for any injury to the remedial action required by the Agencies, to the public or to the environment protected by this Environmental Covenant.

8. Reopening. The signatories acknowledge that failure of the activity and use limitations to serve their intended purpose, including the prevention of contamination exposure, could result in the Agencies reopening their review and regulation of the contaminant condition on the Property as provided in Neb. Rev. Stat. §76-2609.

9. Rights of Access. The Grantor and any then-current owner hereby grant to the Agencies, their agents, contractors, and employees, the right of access to the Property to monitor compliance with the terms, conditions, obligations, and limitations of this Environmental Covenant. Nothing in this Environmental Covenant shall limit or otherwise affect the Agencies' right of entry and access or the Agencies' authority to take response actions under applicable law.

10. Notice Upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property, including but not limited to, deeds, leases and mortgages, shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be in substantially the form set forth below. Within thirty (30) days of the date any such instrument of conveyance is executed, the Grantor or then-owner must provide the Agencies with a certified copy of said instrument and its recording reference in the Saunders County Register of Deeds.

a. NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT DATED _____, RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS OF SAUNDERS COUNTY, NEBRASKA ON _____, IN [DOCUMENT _____, BOOK _____, PAGE ____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS: i) The Property shall be fenced with a minimum 4-feet high fence with a barbed wire strand at every foot unless otherwise approved by the Agencies. Metal signs shall be placed securely on each side of the fence which states the following: **WARNING NO TRESPASSING:** Hazardous Substances Beneath the Surface of the Fenced Area
ii) If the landfill cap is penetrated to a depth that has a reasonable degree of scientific probability of interfering with or impairing that integrity of the capping system, additional engineering steps will be taken to protect human

health and the environment until the integrity of the capping system is restored.

iii) Any party, prior to a planned penetration of the landfill capping system, shall develop a protocol for testing and proper management of any contaminated environmental media that may be encountered. The protocol will be provided to the Agencies for review and approval prior to the implementation.

iv) No actions shall be allowed on the Property that will have a reasonable degree of scientific probability of altering the drainage patterns such that the integrity of the capping system would be compromised, or resulting in unstable slopes on the Property.

v) The installation of wells or other penetration of the groundwater bearing units at the Property are prohibited, except for investigative purposes or as otherwise authorized by the Agencies.

11. Waiver of Certain Defenses. The persons and entities bound by this Environmental Covenant hereby waive any defense to the enforcement of this Environmental Covenant based on laches, estoppel, statute of limitations, or prescription.

12. Amendment and Termination. Amendment or termination of this Environmental Covenant shall comply with Neb. Rev. Stat. §76-2610. The terms of this Environmental Covenant may be modified or terminated by written consent of the Director of the Agencies, the then current fee simple title owner, and all original signatories unless exempted by Neb. Rev. Stat. §76-2610. The amendment or termination is not effective until the document evidencing consent of all necessary persons is properly recorded. If not by consent, any amendment or termination of this Environmental Covenant shall be as provided by Neb. Rev. Stat. §76-2609 and such additional terms as specified in this Environmental Covenant. As provided in Neb. Rev. Stat. §76-2610(c), except for an assignment undertaken pursuant to a governmental reorganization, assignment of an environmental covenant to a new holder is an amendment.

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Captions. The captions in this Environmental Covenant are for convenience and reference only and are not a part of this instrument and shall have no effect upon construction or interpretation.

15. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Nebraska.

16. Recordation. Within thirty (30) days after the date of the Agency's approval of this Environmental Covenant, the Grantor shall record the Environmental Covenant,

in the same manner as a deed to the property, with the Saunders County Register of Deeds.

17. Effective Date. The effective date of this Environmental Covenant is the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the Saunders County Register of Deeds.

17. Distribution of Environmental Covenant. Within 60 days of the effective date, the Grantor shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to the Agencies.

18. Notice. Unless otherwise notified in writing by the Agency, any document or communication required by this Environmental Covenant shall be submitted to:

Remediation Section
Waste Management Division
Nebraska Department of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

U.S. Environmental Protection Agency – Region VII
Mr. Sandeep Mehta, Superfund Division
11201 Renner Blvd.
Lenexa, KS 66219

GRANTOR:

IN WITNESS WHEREOF, Grantor, as the owner of the Property and Holder of this Environmental Covenant, has caused this Environmental Covenant to be executed on this ____ day of _____, 20__.

UNITED STATES OF AMERICA

By: _____

_____

Title

STATE OF NEBRASKA)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who acknowledged said Environmental Covenant on behalf of Grantor.

_____

Notary Public

(SEAL)

AGENCY:

IN WITNESS WHEREOF, NDEQ, as an Agency defined in Neb. Rev. Stat. § 76-2602(2), is not a party to this Environmental Covenant and does not acquire or assume any liability, obligation, or responsibility under state or federal law by virtue of signing this Environmental Covenant, nor is NDEQ a Holder under Neb. Rev. Stat. §§ 76-2602(6) and 76-2603(a).

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: _____

_____
Director

STATE OF NEBRASKA)
) **ss.**
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who acknowledged said Environmental Covenant on behalf of the Agency.

_____
Notary Public

(SEAL)

U. S. ENVIRONMENTAL PROTECTION AGENCY- REGION VII:

IN WITNESS WHEREOF, USEPA, as an Agency defined in Neb. Rev. Stat. § 76-2602(2), is not a party to this Environmental Covenant and does not acquire or assume any liability, obligation, or responsibility under state or federal law by virtue of signing this Environmental Covenant, nor is USEPA a Holder under Neb. Rev. Stat. §§ 76-2602(6) and 76-2603(a).

U.S. ENVIRONMENTAL PROTECTION AGENCY- REGION VII

By: _____
Director
Superfund Division

STATE OF KANSAS)
) **ss.**
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who acknowledged said Environmental Covenant on behalf of the Agency.

_____
Notary Public

(SEAL)