

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
11201 Renner Boulevard
Lenexa, Kansas 66219

IN THE MATTER OF:)

THOMPSON CHEMICALS SITE)
St. Louis, Missouri)

Honeywell International Inc.,)
Superior Oil Company, Inc.,)
Union Pacific Railroad Company, and)
Pharmacia LLC,)

Respondents.)

Proceedings Under Sections 104, 106(a), 107)
and 122 of the Comprehensive Environmental)
Response, Compensation, and Liability)
Act of 1980, as amended, 42 U.S.C. §§ 9604,)
9606(a), 9607 and 9622.)

CERCLA DOCKET NO. 07-2012-0051

ADMINISTRATIVE SETTLEMENT AGREEMENT

AND ORDER ON CONSENT

FOR REMOVAL ACTION

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I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent for Removal Action (“Settlement Agreement”) is entered into voluntarily by Region VII of the United States Environmental Protection Agency (“EPA”) and Honeywell International Inc., Superior Oil Company, Inc., Union Pacific Railroad Company, and Pharmacia LLC (“Respondents”). This Settlement Agreement provides for the performance of a removal action by Respondents and the reimbursement of certain response costs incurred by the United States at or in connection with the Thompson Chemical Site (the “Site”), located between Chouteau Avenue and Convent Street, in blocks 857 North and 857 South and along former LaSalle Street in St. Louis, Missouri.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (“CERCLA”), 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622.

3. EPA has notified the state of Missouri (the “State”), through the Missouri Department of Natural Resources (“MDNR”) of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

4. EPA and Respondents recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondents do not admit, and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of fact, conclusions of law, and determinations in Sections IV and V of this Settlement Agreement. Respondents

agree to comply with and be bound by the terms of this Settlement Agreement, including any modifications thereto, and further agree that they will not contest either EPA's authority to issue or to enforce this Settlement Agreement or the basis or validity of this Settlement Agreement or its terms.

5. Purpose of Settlement Agreement. The purpose of this Settlement Agreement is for Respondents to conduct response actions at the Site, as described in the Enforcement Action Memorandum Amendment #1 (Appendix B) to: (A) remove and properly dispose off-Site 12, 25 cubic-yard roll-off containers containing Waste Materials; (B) remove and properly dispose off-Site, 238, 55-gallon drums containing investigation derived wastes ("IDW") and Metropolitan Sewer District ("MSD") Waste Materials, all from previous investigations and response efforts at the Site; (C) excavate and transport off-Site for proper disposal or treatment the soils in the berm consisting of approximately 400 cubic yards; (D) remove and properly dispose off-Site of any additional material produced as a result of the implementation of these response efforts; and (E) reimburse the EPA its response costs in accordance with Section XVI of this Settlement Agreement.

II. PARTIES BOUND

6. This Settlement Agreement applies to and is binding upon EPA and upon Respondents and their successors and assigns. Any change in ownership or corporate status of a Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Settlement Agreement.

7. Respondents are jointly and severally liable for carrying out all activities required by this Settlement Agreement. In the event of the insolvency or other failure of any one or more

of the Respondents to implement the requirements of this Settlement Agreement, the remaining Respondents shall complete all such requirements.

8. Respondents shall ensure that their contractors, subcontractors and representatives receive a copy of this Settlement Agreement and comply with this Settlement Agreement. Respondents shall be responsible for any noncompliance with this Settlement Agreement.

III. DEFINITIONS

9. Unless otherwise expressly provided herein, terms used in this Settlement Agreement which 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 Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

A. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq.*

B. "Day" shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

C. "Document" or "Record" shall mean any object that records, stores or presents information and includes writings, drawings, graphs, charts, photographs, phone records and other data compilations from which information can be obtained or translated, if necessary, through detection devices into reasonably useable form, and: (i) every copy of each document which is not an exact duplicate of a document which is produced; (ii) every copy which has any writing, figure or notation, annotation or the like on it; (iii) drafts; (iv) attachments to or enclosures with any document; and (v) every document referred to in any other document.

D. "Effective Date" shall mean the date this Settlement Agreement is effective pursuant to Section XXX of this Settlement Agreement.

E. "Enforcement Action Memorandum Amendment #1" shall mean the EPA amended action memorandum relating to the Site, dated April 17, 2013, and all attachments thereto. The Enforcement Action Memorandum Amendment #1 is attached as Appendix B.

F. "EPA" shall mean the United States Environmental Protection Agency and any successor department or agency of the United States.

G. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs on and after the Effective Date of this Settlement Agreement in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the Work, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Paragraph 53 (costs and attorneys fees and any monies paid to secure access, including the amount of just compensation), Paragraph 63 (emergency response), and Paragraph 92 (Work Takeover), that are not inconsistent with the National Contingency Plan. Future Response Costs shall also include all Interim Response Costs.

H. "Interest" shall mean interest at the current rate specified for interest on investments of the EPA Hazardous Substance Super-fund 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.

I. “Interim Response Costs” shall mean all costs, including direct and indirect costs: (i) incurred and paid by EPA in connection with this Site between January 1, 2013 and the Effective Date of this Settlement Agreement; or (ii) incurred by EPA in connection with the Site between January 1, 2013 and the Effective Date of this Settlement Agreement, but paid after the Effective Date.

J. “Matters Addressed” shall mean all Work performed by Respondents pursuant to this Settlement Agreement and all Past Response Costs and Future Response Costs incurred by EPA and paid by Respondents.

K. “MDNR” shall mean the Missouri Department of Natural Resources and any successor department or agency of the State.

L. “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.

M. “Paragraph” shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

N. “Parties” shall mean EPA and Respondents.

O. “Past Response Costs” shall mean all costs not inconsistent with the National Contingency Plan, including direct and indirect costs, incurred and paid by EPA in connection with the Site between and including July 14, 2006 and December 31, 2012.

P. “RCRA” shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

Q. “Respondents shall mean Honeywell International Inc., Superior Oil Company, Inc., Union Pacific Railroad Company, and Pharmacia LLC.

R. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

S. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent for Removal Action and all appendices attached hereto. In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control.

T. "Site" shall mean the Thompson Chemicals Superfund Site located at 60 Chouteau Avenue, St. Louis, Missouri, and depicted generally on the map attached as Appendix C.

U. "State" shall mean the state of Missouri.

V. "TCLP" shall mean the Toxicity Characteristic Leaching Procedure, from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Method 1311.

W. "Waste Material" shall mean: (i) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (ii) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (iii) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (iv) any "hazardous waste" under Missouri Code of State Regulations 10 CSR 25-4.261.

X. "Work" shall mean all activities Respondents are required to perform under this Settlement Agreement, except the record retention requirements under Section XII of this Settlement Agreement.

Y. “Work Plan for Removal Action” shall mean the Work Plan, dated April 2013 and approved by EPA by letter dated May 1, 2013, describing the Work Respondents shall perform under this Settlement Agreement (Appendix A).

IV. FINDINGS OF FACT

10. The Former Thompson Chemicals Superfund Site (“Site”) is located in the southwest quadrant of the intersection of Chouteau Avenue and Wharf Street, in downtown St. Louis, Missouri. The Site lies on the floodplain of the Mississippi River, approximately 300 feet from the west bank of the river. Land use in the area of the Site is primarily commercial and industrial. A site map, depicting the Site, is attached hereto as Appendix C.

11. Groundwater is present at the Site at a depth between 5 to 20 feet beneath the existing surface level. This groundwater is hydraulically connected to the Mississippi River. The Site is protected from flooding by a levee designed to protect against a 500-year flood. The Mill Creek Sewer, a 15 foot by 20 foot limestone masonry combined sewer, runs beneath the Site. The Mill Creek sewer drains into the Mississippi River.

12. A number of different industrial facilities have operated at the Site since the late 1800’s. These operations have included a coal tar processing facility, a storage and manufacturing facility for wood treating products, the production of 2,4-dichlorophenoxyacetic acid (“2,4-D”), 2,4,5-trichlorophenoxyacetic acid (“2,4,5-T”), pesticides and the manufacture of agent orange. The Thompson Chemical Company, possibly under the direction of the Department of Defense, manufactured Agent Orange at the Site. The Site is currently in use as a bulk terminal facility for solvent products.

13. Respondent Superior Oil Company, Inc., d/b/a Superior Solvents and Chemicals, Inc., currently owns approximately one-half of the Site and leases the remainder of the Site from

the Union Pacific Railroad Company. Superior Oil Company has owned and operated at the Site since 1974, and currently operates a storage facility for solvent products.

14. Respondent Union Pacific Railroad Company also owns approximately one-half of the Site, and has owned that portion since the early 1900's. Union Pacific Railroad has located railroad tracks over part of its portion of the Site. During the course of the 1900s, Missouri Pacific Railroad leased its portion of the Site to various industrial manufacturers, which operated at the Site.

15. Respondent Honeywell International Inc.'s predecessors at the Site, Allied Signal, Allied Chemical and Dye Corporation, and the Barrett Company, operated a coal tar processing facility at the Site, for a period of time between 1898 and 1947, manufacturing tar impregnated roofing felt, roofing pitch, driveway/roadway sealer and creosote.

16. Pharmacia LLC, then known as Monsanto Company, operated at the Site for periods of time from 1963 to 1974. Wood Treating Chemicals Company, a wholly owned subsidiary of Pharmacia LLC, owned or leased various portions of the Site, where it conducted processing, blending and tank storage activities from the late 1940's or early 1950's through the fall of 1971. Wood Treating Chemicals Company blended dry pentachlorophenol with a 3% heated oil to produce 5% penta solution.

17. Sampling conducted by EPA in June and October of 1984 identified the presence of 2,3,7,8-tetrachlorodibenzo-p-dioxin ("2,3,7,8-TCDD") in the soils at the Site at levels up to 160 parts per billion ("ppb"), with the vertical extent of contamination ranging from ground surface to 5.5 feet. The sampling efforts also identified the presence of semi-volatile and volatile organic compounds in the soils at the Site, including trichloroethylene, methylene chloride and

tetrachloroethylene, and the presence of polycyclic aromatic hydrocarbons (“PAHs”) in the soils at levels up to 2,831 parts per million (“ppm”).

18. The EPA sampled the Mill Creek Sewer, which runs underneath the Site, in March of 1987, August 1987, and November 1988. These sampling events identified the presence of 2,3,7,8-TCDD in the sewer ceiling and wall sediments at levels up to 30 parts per billion (“ppb”). The presence of PAHs within the sewer was also identified.

19. Impacts from the Thompson Chemical manufacturing operations, and possibly other industrial operations at and around the Site, led to certain response activities being undertaken by Respondents at the Site.

a. In December of 1987, a buried steel railcar tanker was removed from the Site. Samples were taken during the removal of the buried tank, indicating the presence of 2,3,7,8-TCDD in the material in the tank. After removal of the tank, samples were obtained from the bottom surface of the excavation at a depth of approximately eight to nine feet below ground surface. Analysis of these samples documented the presence of 2,3,7,8-TCDD and PAHs. Waste Material produced during the tank removal included soil from the excavation as well as miscellaneous debris, coal tar from inside the tank, steel sections of the tank, and used personal protective equipment (“PPE”). This Waste Material was placed into twelve (12) 25-cubic yard rolloff containers (“Rolloff Wastes”). The rolloffs were entirely enclosed with steel lids and covered with tarps to shed precipitation and have been staged on the Site since that time.

b. There are currently twenty-three (23) drums of investigation derived wastes (“IDW”) from previous investigations conducted at the Site (“IDW Drums”). The IDW consists of soil drilling cuttings, water from equipment rinsing and observation well purging and sampling activities, used PPE, and other miscellaneous debris produced during the performance

of previous soil and groundwater investigations at the Site. IDW Drums are currently staged on pallets located inside a trailer at the Site.

c. There are approximately 215 drums containing debris such as miscellaneous bricks, PPE, and sorbent material from booming and related operations associated with the St. Louis Metropolitan Sewer District (“MSD”) Mill Creek Trunkline storm sewer which runs directly beneath the Site (“MSD Trunkline Waste”). The booming operations were conducted to address an oily sheen that appeared on surface water within the storm sewer. This response action involved the removal of Waste Material from the interior of the portion of the Mill Creek Sewer that ran beneath the Site. The drums are currently staged on pallets located inside a trailer that has been specifically designed for this purpose.

d. A soil berm exists at the Site. This soil berm is roughly rectangular in shape, approximately 70 feet in width by 140 feet in length and approximately 2 to 6 feet in height. The soil berm was used to provide secondary containment for a series of aboveground storage tanks at the Site that have since been removed. The soil berm is covered with a synthetic liner. A survey of the berm indicates that the volume of the berm is approximately 400 cubic yards.

20. In April 1996, Respondents entered into, and EPA issued, an Administrative Order on Consent (“AOC”) for the purpose of conducting an engineering evaluation and cost analysis (“EE/CA”) to investigate and evaluate alternative response actions to address the remaining contamination at the Site.

21. In April of 2004, Respondents submitted the EE/CA Report to EPA for review and approval. The EE/CA Report provided a summary of the previously collected data from the Site, including data obtained during field activity which took place in 2000 and 2001.

Groundwater was not required to be addressed under the AOC and therefore was not evaluated in the EE/CA.

22. 2,3,7,8-TCDD, volatile and semi-volatile organic compounds and PAHs remain in soils at the Site. The Site is currently utilized as a bulk storage facility for solvent products. The potential exists for the 2,3,7,8-TCDD, volatile and semi-volatile organic compounds in the soils to migrate off-Site or to leach into the groundwater.

23. On January 26, 2004, MDNR reviewed the Respondents' proposal to dispose of the Rolloff Wastes in a RCRA subtitle C landfill and concluded that the subject waste are not a listed hazardous wastes pursuant to Subpart D of 40 C.F.R. Part 261 and, provided that the materials did not exhibit a characteristic of a hazardous waste pursuant to Subpart C of 40 C.F.R. Part 261, such materials may be disposed of as non-hazardous waste under RCRA and as hazardous waste under the Missouri waste code MH02 pursuant to 10 CSR 25-4.261.

24. To evaluate whether the Rolloff Wastes and drummed waste (i.e., IDW/MSD drums) were characteristic hazardous wastes, a waste sampling approach was developed in conjunction with EPA and MDNR. The sampling consisted of TCLP testing of the waste to evaluate if the material was a characteristically hazardous waste and also dioxin analysis of the waste. A Sampling and Analysis Plan ("SAP") and a Quality Assurance Project Plan ("QAPP"), dated August 25, 2011, and a project specific Health and Safety Plan ("HASP"), dated August 30, 2011, were prepared for the sampling and sample analysis efforts and to provide details regarding the sampling approach, sampling methods, data quality objectives, analytical methods, and analytical quality assurance/quality control. The SAP and QAPP were reviewed and approved by EPA and MDNR.

25. Sampling of the Rolloff Waste and drummed waste (i.e., IDW/MSD drums) was performed the week of September 19, 2011. None of the chemicals of concern were detected at concentrations exceeding the TCLP criteria promulgated in 40 C.F.R. § 261.24. A December 8, 2011 Waste Disposal Profiling Investigation Report, Former Thompson Chemical Site, documenting the sampling activities and methods, analytical results, and findings and conclusions was submitted to EPA and MDNR. EPA reviewed this report and, in conjunction with MDNR, issued an approval letter, dated January 10, 2012, to Respondents.

26. To evaluate whether the berm soil exhibited characteristics of a hazardous waste, a sampling approach was developed in conjunction with EPA and MDNR. The sampling consisted of TCLP testing and also dioxin analysis. A Work Plan for Removal Action dated April 16, 2012, a QAPP, dated April 28, 2012, and a project specific HASP, dated April 28, 2012, were prepared for the sampling and sample analysis efforts and to provide details regarding the sampling approach, sampling methods, data quality objectives, analytical methods, and analytical quality assurance/quality control. The April 16, 2012 Work Plan and QAPP were reviewed and approved by EPA and MDNR after receipt of comments and modification of the sampling approach.

27. Sampling of the berm soil was performed the week of September 3, 2012. None of the chemicals of concern were detected at concentrations exceeding the TCLP criteria promulgated in 40 C.F.R. § 261.24. The Soil Berm Waste Disposal Profiling Investigation Report, dated November 27, 2012, documenting the sampling activities and methods, analytical results, and findings and conclusions was approved by EPA on December 17, 2012.

28. The Enforcement Action Memorandum Amendment #1 which selected the appropriate response actions for the Site was issued by EPA on April 17, 2013, and is attached hereto as Appendix B.

29. The chlorinated dibenzo-p-dioxins are a class of compounds that are loosely referred to as dioxins. The one with four chlorine atoms at positions 2,3,7 and 8 of the dibenzo-p-dioxin chemical structure is called 2,3,7,8-TCDD. 2,3,7,8-TCDD can result from the production or use of herbicides containing 2,4-D and 2,4,5-T, and the production and use of certain wood preservatives. 2,3,7,8-TCDD can be absorbed into the body through dermal contact, ingestion and inhalation. Based on positive evidence in animal studies, EPA and the International Agency for Research on Cancer have concluded 2,3,7,8-TCDD probably causes a threat to human health.

30. PAHs can be found in substances such as crude oil, coal, coal tar pitch, creosote and road and roofing tar. PAHs enter the body by all routes of exposure. The U.S. Department of Health and Human Services has determined that PAHs may reasonably be anticipated to be a threat to human health.

31. Methylene chloride, trichloroethylene and tetrachloroethylene are organic solvents which are widely used in industry. These solvents may enter the body through inhalation or ingestion. Based on positive evidence in animal studies, EPA considers these solvents to be a threat to human health.

32. The Site is not currently on the National Priorities List and has not been proposed for listing.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

33. Based on the Findings of Fact set forth above, and the Administrative Record supporting the removal action, EPA has determined that:

- A. The Site is a “facility” as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).
- B. Certain contaminants found at the Site, as identified in the Findings of Fact above, are “hazardous substances” as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
- C. Each Respondent is a “person” as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).
- D. Each Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is jointly and severally liable for performance of response action and for response costs incurred and to be incurred at the Site.
- E. The conditions described in the Findings of Fact above constitute an actual or threatened “release” of a hazardous substance from a facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).
- F. The actions required by this Settlement Agreement are necessary to protect the public health, welfare or the environment, are in the public interest and, if carried out in compliance with the terms of this Settlement Agreement, will be considered consistent with the NCP, as provided in 40 C.F.R. § 300.700(c)(3)(ii).

VI. SETTLEMENT AGREEMENT AND ORDER

34. Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby ORDERED and AGREED that

Respondents shall comply with all provisions of this Settlement Agreement, including, but not limited to, all appendices to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND ON-SCENE COORDINATOR

35. Selection of Response Contractors. Respondents have retained SLR International Corporation as the primary contractor to perform the Work under this Settlement Agreement. Respondents shall notify EPA of the name(s) and qualification(s) of any other contractor or subcontractor retained to perform the Work at least ten (10) days prior to commencement of Work by any such contractor or subcontractor. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondents. If EPA disapproves of a selected contractor, Respondents shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within fourteen (14) days of receipt of EPA's disapproval. The primary contractor must demonstrate compliance with ANSI/ASQC E-4-1994, "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 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/B0-1/002, or equivalent documentation as required by EPA.

36. Respondents designate Oren Gottlieb, Principal Scientist, SLR International Corporation, as their Project Coordinator who shall be responsible for administration of all actions by Respondents required by this Settlement Agreement. Respondents' Project Coordinator's contact information is as follows:

Oren Gottlieb
Principal Scientist
SLR International Corporation
597-599 Industrial Drive, Suite 211
Carmel, Indiana 46032

Tel: 317-876-3940
Fax: 317-536-3309
Cell: 317-519-9684
ogottlieb@slrconsulting.com

37. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site Work. EPA retains the right to disapprove of Respondents' designated Project Coordinator for good cause. If EPA disapproves of Respondents' designated Project Coordinator for good cause, Respondents shall retain a different Project Coordinator and shall notify EPA of that person's name, address, contact information, and qualifications within fourteen (14) days of receipt of EPA's written disapproval. Receipt by Respondents' Project Coordinator of any notice or communication from EPA relating to this Settlement Agreement shall constitute receipt by all Respondents.

38. EPA has designated Michael B. Davis as its On-Scene Coordinator ("OSC"). Except as otherwise provided in this Settlement Agreement, Respondents shall direct all submissions required by this Settlement Agreement to the OSC at:

Mike Davis
On-Scene Coordinator
Superfund Division
U.S. EPA, Region VII
8600 N.E. Underground Road, Pillar 253
Kansas City, Missouri 64161

Or by email to davis.michaelb@epamail.epa.gov. Unless otherwise specified herein, all submissions required by this Settlement Agreement shall be submitted to the OSC. Upon request by EPA, Respondents shall submit its submissions in electronic form.

39. EPA and Respondents shall have the right, subject to Paragraphs 37, to change their respective designated OSC or Project Coordinator. Respondents shall notify EPA at least ten (10) days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notice.

VIII. WORK TO BE PERFORMED

40. Respondents shall perform the following actions consisting of off-Site disposal of Waste Material identified in the December 8, 2011 Waste Profiling Investigation (“WPI”) Report (attached hereto as Appendix D) and the berm soil. This Waste Material consists of the Rolloff Waste, IDW Drums, and MSD Trunkline Waste. The Waste Material and berm soil will be disposed of in a RCRA Subtitle C (i.e., hazardous waste) landfill located in the coterminous United States. The Parties agree that such disposal is permissible and appropriate.

41. Work Plan and Implementation.

A. The Work Plan for performing the removal actions generally described in Paragraph 40 above is attached as Appendix A. The Work Plan provides a description of, and an expeditious schedule for conducting, the actions required by this Settlement Agreement.

B. Respondents shall not commence any Work except in conformance with the terms of this Settlement Agreement. Respondents shall not commence implementation of any plan until receiving written EPA approval of such plan pursuant Section IX of this Settlement Agreement.

42. Health and Safety Plan. Within thirty (30) days of the Effective Date of this Settlement Agreement, Respondents shall submit a HSP to EPA for review and comment. The HASP shall be developed to ensure the protection of the public health and safety during performance of the Work under this Settlement Agreement. This plan shall be prepared in

accordance with” EPA’s Standard Operating Safety Guide,” PUB 9285.1-03, PB 92-963414, June 1992. In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration (“OSHA”) regulations found at 29 C.F.R. Part 1910. The HASP shall include the following elements:

- A. Assessment of chemical and physical hazards at all locations where Work will be performed;
- B. Identification of Site control measures and required levels of protection and safety equipment;
- C. Field monitoring equipment;
- D. Equipment and personnel decontamination and residual management disposal;
- E. Training and medical monitoring requirements; and
- F. Emergency contingency planning and emergency contacts.

43. Quality Assurance and Sampling.

A. Within thirty (30) days of the Effective Date of this Settlement Agreement, Respondents shall submit an amendment to the September 13, 2011 project-specific Quality Assurance Project Plan (“QAPP”) for sample analysis and data handling for all samples collected pursuant to this Settlement Agreement. The QAPP shall be prepared in accordance with “EPA Requirements for Quality Assurance Project Plans (QA/R-5),” EPA/240/B-01/003, March 2001, and “EPA Guidance for Quality Assurance Project Plans (QA/G-5),” EPA/600/R-98/018, February 1998.

B. The QAPP shall define in detail the sampling and data-gathering methods that will be used, and shall include sampling objectives, a detailed descriptions of sampling

activities, including sample locations, sample analyses, sampling equipment and procedures, station positioning, sample handling (i.e., sample containers and labels, sample preservation, chain-of-custody), and a schedule for sampling and analyses.

C. All sampling and analyses performed pursuant to this Settlement Agreement shall conform to EPA directives and guidance regarding sampling, quality assurance/quality control (“QA/QC”), data validation, and chain of custody procedures. Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate EPA guidance. Respondents shall follow, as appropriate, “Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures” (OSWER Directive No. 9360.4-01, April 1, 1990), as guidance for QA/QC and sampling. Respondents shall only use laboratories that have a documented Quality System that complies with ANSI/ASQC E-4 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),” 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.

D. Upon request by EPA, Respondents shall have such a laboratory analyze samples submitted by EPA for QA monitoring. Respondents shall provide to EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

E. Upon request by EPA, Respondents shall allow EPA or its authorized representatives to take split and/or duplicate samples. Respondents shall notify EPA not less than seven (7) days in advance of any sample collection activity, unless shorter notice is agreed to by EPA. The EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Respondents to take split or duplicate samples of any samples it takes as part of its oversight of Respondents' implementation of the Work.

44. Reporting.

A. Periodic Progress Reports. Unless the Parties agree to a different reporting period, Respondents shall submit electronically monthly progress reports to EPA on or before the 10th day of each month immediately following each reporting period, beginning with the first full month following the Effective Date of this Settlement Agreement. Periodic reporting shall continue until EPA issues its Notice of Completion of Work pursuant to Section XXVIII of this Settlement Agreement. Each periodic report shall include, at a minimum: (i) a description of all significant developments that occurred during the reporting period, including the actions performed and any problems encountered; (ii) copies of any analytical data received during the reporting period; (iii) a description of actions scheduled to occur during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems; and (iv) any proposed revisions to the project schedule.

B. Final Removal Action Report. Within sixty (60) days after completion of all Work required by this Settlement Agreement, Respondents shall submit for EPA review and approval the final Removal Action Report ("RAR") summarizing all actions taken by Respondents to comply with the terms of this Settlement Agreement. The RAR shall conform, at

a minimum, to the requirements set forth in Section 300.165 of the NCP entitled “OSC Reports” and the guidance “Superfund Removal Procedures: Removal Response Reporting — POLREPS and OSC Reports,” OSWER Directive No. 9360.3-03, June 1, 1994. The RAR shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with this Settlement Agreement, a listing of quantities and types of materials removed off-Site or handled on-Site, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The RAR shall also include the following certification signed by a person who supervised or directed the preparation of that report:

“Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

45. Off-Site Shipments.

A. Respondents shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility’s state and to the OSC. However, this notification requirement shall not apply to any off-Site shipment when the total volume of all such shipments will not exceed 10 cubic yards.

i. Respondents shall include in the written notification the following information: (a) the name and location of the facility to which the Waste Material is to be

shipped; (b) the type and quantity of the Waste Material to be shipped; (c) the expected schedule for the shipment of the Waste Material; and (d) the method of transportation. Respondents shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

ii. The identity of the receiving facility and state will be determined by Respondents following the award of the contract for the removal action. Respondents shall provide the information required by Paragraphs 45(A) and 45(B) as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

B. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-Site location, Respondents shall obtain EPA's certification that the proposed receiving 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. Respondents shall only send hazardous substances, pollutants, or contaminants from the Site to an off-Site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

IX. EPA REVIEW OF SUBMISSIONS

46. After review of any plan, report or other deliverable which is required to be submitted for approval pursuant to this Settlement Agreement, including a resubmission, copies of which shall be sent to the Missouri Department of Natural Resources ("MDNR") through Candice McGhee, Hazardous Waste Program, MDNR, P.O. Box 176, Jefferson City, Missouri 65102, at the same time it is submitted to EPA, EPA shall, in writing: (A) approve, in whole or in part, the submission; (B) approve the submission upon specified conditions; (C) disapprove, in

whole or in part, the submission, directing that Respondents modify the submission; (D) modify or develop the required deliverable to cure the deficiencies; or (E) any combination of the above. However, EPA shall not modify or develop a submission without first providing Respondents with at least one notice of deficiency and an opportunity to cure, except where to do so would cause serious disruption to the Work or where a previous submission(s) has been disapproved due to a material defect and the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

47. In the event of approval, approval upon specified conditions, or modification or development by EPA pursuant to Paragraph 46(A), (B) or (D), Respondents shall proceed to take any action required by the plan, report or other deliverable as approved, modified or developed by EPA subject only to Respondents' right to invoke the Dispute Resolution procedures set forth in Section XVII of this Settlement Agreement with respect to the modifications, development or conditions made by EPA. In the event that EPA modifies or develops the submission to cure the deficiencies pursuant to Paragraph 46(D) and the submission has a material defect, EPA retains its right to seek stipulated penalties under Section XIX of this Settlement Agreement.

48. Resubmission of Plans.

A. Upon receipt of a notice of EPA approval with specified conditions pursuant to Paragraph 46(B) or a notice of disapproval pursuant to Paragraph 46(C), Respondents shall, within forty-five (45) days or such additional time as specified by EPA in such notice, address the conditions and/or correct the deficiencies and resubmit the plan, report or other deliverable to EPA for approval as specified in the EPA notice. Any stipulated penalty applicable to the submission, as provided in Section XIX of this Settlement Agreement, shall

accrue during the forty-five (45) day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified or developed by EPA due to a material defect as provided in Paragraphs 49 and 50.

B. Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 46(C), Respondents shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Respondents of any liability for stipulated penalties under Section XIX of this Settlement Agreement.

49. In the event a resubmitted plan, report or other deliverable, or portion thereof, is disapproved by EPA, EPA may again require Respondents to correct the deficiencies, in accordance with this Section. The EPA also retains the right to modify or develop the plan, report or other deliverable. Respondents shall implement any such plan, report or deliverable as modified or developed by EPA, subject only to Respondents' right to invoke the procedures set forth in Section XVII (Dispute Resolution) of this Settlement Agreement.

50. If upon resubmission, a plan, report or other deliverable is disapproved, modified or developed by EPA due to a material defect, Respondents shall be deemed to have failed to submit such plan, report or deliverable in a timely and adequate manner, unless Respondents invoke the dispute resolution procedures in Section XVII of this Settlement Agreement and EPA's action is overturned pursuant to that Section. The provisions of Sections XVII (Dispute Resolution) and XIX (Stipulated Penalties) of this Settlement Agreement shall govern the implementation of the Work and accrual and payment of any stipulated penalty during dispute resolution. If disapproval or modification or development is upheld, stipulated penalties shall,

accrue for such violation from the date on which the initial submission was originally required, as provided in Section XIX (Stipulated Penalties) of this Settlement Agreement.

51. All plans, reports and other deliverables required to be submitted to EPA under this Settlement Agreement shall, upon approval or modification or development by EPA, be enforceable under this Settlement Agreement. In the event EPA approves, modifies or develops a portion of a plan, report or other deliverable required to be submitted to EPA under this Settlement Agreement, the approved, modified or developed portion shall be enforceable under this Settlement Agreement.

X. SITE ACCESS

52. Respondent Superior Oil Company, Inc. shall, commencing on the Effective Date of this Settlement Agreement, provide EPA and its representatives with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Settlement Agreement.

53. If any action under this Settlement Agreement is to be performed in areas owned by or in possession of someone other than Respondents, Respondents shall use best efforts to obtain all necessary access agreements within forty-five (45) days of the Effective Date of this Settlement Agreement, or within forty-five (45) days of being made aware that access to an area owned by in or possession of someone other than Respondents is required (whichever is later), or within such other time as specified in writing by the OSC. Such access shall be for Respondents and EPA, and their representatives, for the purpose of conducting any activity related to this Settlement Agreement. For purposes of this Paragraph, "best efforts" includes the payment of reasonable compensation in consideration of access. In the event any such access agreement is not obtained within the required time period, Respondents shall notify EPA in writing of their

failure to obtain access and describe their efforts to obtain such access. EPA may then assist Respondents in gaining access, to the extent necessary to effectuate the response actions required under this Settlement Agreement, using such means as EPA deems appropriate. Respondents shall reimburse EPA, in accordance with Section XVI (Payment of Response Costs) of this Settlement Agreement, for all costs incurred, direct or indirect, by the United States in obtaining such access, including, but not limited to, the cost of attorney's time.

54. Notwithstanding any provision of this Settlement Agreement, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA and other applicable statutes or regulation.

XI. ACCESS TO INFORMATION

55. Upon request and subject to Paragraph 57 herein, Respondents shall provide to EPA copies of all non-privileged documents and information within their possession or control or that of their contractors or agents relating to the implementation of this Settlement Agreement, including, but not limited to, sampling analysis, chain of custody records, manifests, trucking logs, receipts, reports, correspondence or other documents or information related to the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

56. A Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to EPA under this Settlement Agreement 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). Documents or information 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 documents or information when they are submitted to EPA, or if EPA has notified the submitting Respondent that the documents or information are not confidential under the standards of CERCLA Section 104(e)(7) or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to that Respondent consistent with the provisions of 40 C.F.R. Part 2.

57. A Respondent may assert that certain documents, records and other information are privileged under the attorney work-product privilege, attorney-client privilege or any other privilege recognized by Federal law. If a Respondent asserts such a privilege in lieu of providing documents, that Respondent shall provide EPA with the following: (A) the title of the document, record or information; (B) the date of the document, record or information; (C) the name and title of the author of the document, record or information; (D) the name and title of each addressee and recipient; (E) a description of the contents of the document, record or information; and (F) the privilege asserted by that Respondent. However, no document, report or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that it is privileged.

58. No claim of confidentiality shall be made with respect to any plan, design, or any other submission prepared and submitted pursuant to this Settlement Agreement. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical or engineering data evidencing conditions at or around the Site.

XII. RECORD RETENTION

59. Until ten (10) years after Respondents' receipt of EPA's notification pursuant to Section XXVIII (Notice of Completion of Work), each Respondent shall preserve and retain all

non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until ten (10) years after Respondents' receipt of EPA's notification pursuant to Section XXVIII (Notice of Completion of Work), Respondents shall also instruct their contractors and agents to preserve all documents, records and information of whatever kind, nature or description relating to performance of the Work. To the extent Respondents preserve a contractor's and agent's documents, records or information pursuant to this Paragraph, that contractor or agent shall not be required to preserve such documents, records or information.

60. At the conclusion of this document retention period, each Respondent shall notify EPA at least ninety (90) days prior to the destruction of any such records or documents, and, upon request by EPA, that Respondent shall deliver any such records or documents to EPA. A Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by Federal law. If a Respondent asserts such a privilege, that Respondent shall provide EPA with the following: (A) the title of the document, record or information; (B) the date of the document, record or information; (C) the name and title of the author of the document, record or information; (D) the name and title of each addressee and recipient; (E) a description of the subject of the document, record or information; and (F) the privilege asserted by that Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

61. Each Respondent hereby 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, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information 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.

XIII. COMPLIANCE WITH OTHER LAWS

62. Respondents shall perform all actions required pursuant to this Settlement Agreement in accordance with all applicable local, state and Federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-Site actions required pursuant to this Settlement Agreement shall, to the extent practicable, as determined by EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (“ARARs”) under Federal environmental or state environmental or facility siting laws.

XIV. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

63. In the event of any action or occurrence after the Effective Date of this Settlement Agreement during performance of the Work which 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, Respondents shall immediately take all appropriate action. Respondents shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened

by the release. Respondents shall also immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer on the 24-hour spill line (913-281-0991) of the incident or Site conditions. In the event that Respondents fail to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondents shall reimburse EPA all costs incurred as a result of EPA's response actions, not inconsistent with the NCP, pursuant to Section XVI (Payment of Response Costs).

64. Notwithstanding the requirements of the preceding Paragraph, nothing in this Settlement Agreement shall obligate any Respondent, except Superior Solvents and Chemicals, Inc., to take any action as a response to any release arising solely from the ongoing business operations of Superior Solvents and Chemicals, Inc.

65. In addition, in the event of any release of a hazardous substance from the Site above a reportable quantity after the Effective Date of this Settlement Agreement, Respondents shall immediately notify the OSC, the Regional Duty Officer at (913) 281-0991, and the National Response Center at (800) 424-8802. Respondents shall submit a written report to EPA within seven (7) days after such release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.* Notwithstanding the requirements of this Paragraph, nothing in this Settlement Agreement shall obligate any Respondent, except Superior Solvents and Chemicals, Inc., to take any action as a response to any release arising from the ongoing business operations of Superior Solvents and Chemicals, Inc., at the Site subsequent to the Effective Date of this Settlement Agreement.

XV. AUTHORITY OF ON-SCENE COORDINATOR

66. The OSC shall be responsible for overseeing Respondents' implementation of this Settlement Agreement. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any Work required by this Settlement Agreement, or direct any other removal action undertaken at the site. Absence of the OSC from the Site shall not be cause for stoppage of Work unless specifically directed by the OSC.

XVI. PAYMENT OF RESPONSE COSTS

67. Payments for Response Costs.

A. Respondents shall reimburse EPA \$181,555.25 for Past Response Costs no later than sixty (60) days after the Effective Date of this Settlement Agreement.

B. Respondents shall reimburse EPA all Future Response Costs incurred by EPA in connection with this Settlement Agreement. On a periodic basis, but no less frequently than annually, EPA will send Respondents a bill requiring payment that includes an Itemized Cost Summary ("ICS") Report, which shall serve as the basis for the payment demands. Each ICS Report for a billing period will include: (i) EPA's payroll costs, including the names of the persons charging time, the pay periods each employee charged time, the number of hours charged per pay period and the payroll amounts for each employee per pay period; (ii) EPA's travel costs, including the names of the persons charging travel and the date of payment of each travel claim; (iii) contract and cooperative agreement costs, including dollar amounts paid, dates paid and invoice numbers for such payments; (iv) EPA's indirect costs, including the amount computed; and (v) U.S. Department of Justice costs, if any.

C. Respondents shall make all payments required by this Paragraph within sixty (60) days of receipt of each bill requiring payment, except as otherwise provided in

Paragraph 68 of this Settlement Agreement. Payments required by this Paragraph shall be made by certified or cashier's checks made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party(s) making payment, the Site name and the EPA Site/Spill ID number 07R8 and the EPA Docket Number 07-2012-0051. Respondents shall send each payment to following address:

For USPS:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
P.O. Box 979076
St. Louis, Missouri 63197-9000

For UPS, FedEx, or Overnight:

U.S. Bank (314-418-1028)
Government Lockbox 979076
U.S. EPA Superfund Payments
1005 Convention Plaza
SL-MO-C2-GL
St. Louis, Missouri 63101

D. At the time of each payment, Respondents shall send notice that payment has been made to the OSC and to acctsreceivable.cinwd@epa.gov.

E. The total amount to be paid by Respondents pursuant to Paragraphs 67.A and B shall be deposited in the Site Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or be transferred by EPA to the EPA Hazardous Substance Superfund.

68. Respondents may contest all or part of a bill for Future Response Costs submitted under this Settlement Agreement, if Respondents allege that EPA has made an accounting error, such as billing for work conducted at a different site, or if Respondents allege that EPA incurred costs for an action that was inconsistent with the NCP. Such an objection shall be made in writing within thirty (30) days of receipt of the billing and must be sent to the OSC. Any such

objection shall specifically identify the contested Future Response Costs and the basis for the objection. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondents shall pay the full amount of the uncontested costs to EPA as specified in Paragraph 67 on or before the due date. Within the same time period, Respondents shall establish an interest-bearing escrow account in a Federally-insured bank and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Respondents shall simultaneously transmit to the OSC a copy of the correspondence/documentation that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account number under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account to the OSC. Simultaneously with the establishment of the escrow account, Respondents shall initiate the dispute resolution procedures in Section XVII (Dispute Resolution) of this Settlement Agreement. If the EPA prevails in the dispute, Respondents shall pay within thirty (30) days of the resolution of the dispute the sums due with interest to EPA in the manner described in Paragraph 67. If the Respondents prevail concerning any aspect of the contested costs, Respondents shall pay only that portion of the costs plus associated accrued interest on sums for which Respondents did not prevail to EPA in the manner described in Paragraph 67; Respondents shall be disbursed any balance of the escrow account within thirty (30) days of the resolution of the dispute. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XVII (Dispute Resolution) of this Settlement Agreement shall be the exclusive mechanisms for resolving disputes regarding Respondents' obligation to reimburse EPA for its Future Response

Costs under this Settlement Agreement. Respondents shall bear all costs related to establishing and maintaining any escrow account.

69. In the event a payment for Future Response Costs is not made within sixty (60) days of Respondents' receipt of a bill, or disputed Future Response Costs are not put into an interest-bearing escrow account, Respondents shall pay Interest on the unpaid balance. The Interest to be paid on Future Response Costs shall begin to accrue sixty (60) days after receipt of the bill and shall continue to accrue until the date of payment. Interest shall accrue on Future Response Costs through the date of Respondents' payment, but need not be paid if the required payments are made by the due date. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section, including, but not limited to, payment of stipulated penalties pursuant to Section XIX (Stipulated Penalties) of this Settlement Agreement.

XVII. DISPUTE RESOLUTION

70. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

71. If Respondents object to any EPA action taken pursuant to this Settlement Agreement, including billings for Future Response Costs, Respondents shall notify EPA in writing of their objection(s) within twenty-one (21) days of such action or receipt of a billing, unless the objection(s) has/have been resolved informally or the deadline for a dispute has been extended by agreement of the Parties. Respondents' written objections shall define the dispute

and state the basis of Respondents' objection(s). EPA and Respondents shall then have forty-five (45) days from EPA's receipt of Respondents' written objection(s) to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA.

72. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by both Parties, be incorporated into and become an enforceable part of this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, Respondents may, within ten (10) days following the end of the Negotiation Period, request a decision by the Director of EPA Region VII's Superfund Division. The Director's decision shall be in writing and incorporated into and become an enforceable part of this Settlement Agreement. Respondents shall proceed in accordance with the Director's decision regarding the matter in dispute regardless of whether Respondents agree with the decision. If Respondents do not abide by the Director's decision, EPA reserves the right in its sole discretion to conduct the Work itself, seek reimbursement from Respondents, seek enforcement of the decision, seek stipulated penalties and/or seek any other appropriate relief.

73. Except as provided in Paragraph 83, the existence of a dispute as defined herein and EPA's consideration of such matters as placed in dispute shall not excuse, toll or suspend any compliance obligation or deadline required pursuant to this Settlement Agreement during the pendency of the dispute resolution process unless mutually agreed upon (except as to a dispute which is resolved in Respondents' favor) or unless otherwise excused, tolled or suspended by EPA Region VII's Superfund Division Director.

74. Except as provided in Paragraph 83, during the dispute resolution process set forth above, EPA reserves the right to take any action authorized by law, specifically including

those actions authorized by Sections 104, 106, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9606, 9607 and 9622.

75. Notwithstanding any other provisions of this Settlement Agreement, no action or decision by EPA pursuant hereto shall constitute final agency action giving rise to any rights to judicial review prior to EPA's initiation of judicial action to compel Respondents' compliance with this Settlement Agreement.

XVIII. FORCE MAJEURE

76. Respondents agree to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, a *force majeure* is defined as any event arising from causes beyond the control of Respondents, or of any entity controlled by Respondents, including but not limited to their contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondents' best efforts, to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work, increased cost of performance or a failure to achieve the performance standards set forth in the Enforcement Action Memorandum Amendment #1 (Appendix B).

77. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondents shall notify EPA orally within five (5) days of when a Respondent first knew that the event might cause a delay. Within ten (10) working days thereafter, Respondents shall provide to EPA in writing: (A) an explanation and description of the reasons for the delay; (B) the anticipated duration of the delay; (C) all actions taken or to be taken to prevent or minimize

the delay; (D) a schedule for implementation of any actions to be taken to prevent or mitigate the delay or the effect of the delay; (E) Respondents' rationale for attributing such delay to a *force majeure* event, if Respondents intend to assert such a claim; and (F) a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements of this Section shall preclude Respondents from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

78. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time period for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event 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* event shall not, of itself, extend the time for performance by Respondents of any other obligation under this Settlement Agreement. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondents in writing of its decision. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, EPA will notify Respondents in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

79. If Respondents elect to invoke the dispute resolution procedures set forth in Section XVII (Dispute Resolution) of this Settlement Agreement, Respondents shall do so within fifteen (15) days after receipt of EPA's written determination pursuant to Paragraph 78.

XIX. STIPULATED PENALTIES

80. Respondents shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraph 81 for failure to comply with the requirements of this Settlement Agreement

specified below, unless excused under Section XVIII (*Force Majeure*) or Section XVII (Dispute Resolution). Compliance by Respondents shall include completion of any activity under this Settlement Agreement or any work plan or other plan approved under this Settlement Agreement, in accordance with all applicable requirements of law, this Settlement Agreement, any plans or other documents approved by EPA pursuant to this Settlement Agreement, and within the specified time schedules established by and approved under this Settlement Agreement.

81. Stipulated Penalty Amounts - Work/Plans/Reports/Payments:

A. The following stipulated penalties shall accrue per violation per day for failure to complete work by specified deadlines, failure to make a payment required under this Order, or failure to submit to EPA any submission (except periodic progress reports) in a timely or adequate manner:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$750.00	1st through 14th day
\$1,500.00	15th through 30th day
\$3,000.00	31st day and beyond

B. The following stipulated penalties shall accrue per violation per day for failure to submit to EPA any periodic progress report in a timely or adequate manner:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$500.00	1st through 14th day
\$1,000.00	15th through 30th day
\$2,000.00	31st day and beyond

82. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 92 of Section XXI before 25% of the Work is completed, Respondents shall be liable for a total stipulated penalty in the amount of \$800,000. This penalty amount shall

be reduced to \$600,000, \$400,000, and \$200,000 if the takeover occurs when 25-50%, 50-75%, and 75-99% of the Work is completed, respectively.

83. 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 VIII (Work to be Performed) of this Settlement Agreement, during the period, if any, beginning on the thirty-first (31st) day after EPA's receipt of such submission until the date of Respondents' receipt of EPA's written notification of any deficiency; and (B) with respect to a decision by the Director of EPA Region VII's Superfund Division under Section XVII (Dispute Resolution), during the period, if any, beginning on the twenty-first (21st) day after the Negotiation Period begins until the date of Respondents' receipt of the Director's final written decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

84. Following EPA's determination that Respondents have failed to comply with a requirement of this Settlement Agreement, EPA shall give Respondents written notification of the failure and describe the noncompliance. The EPA may send Respondents a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondents of a violation.

85. All penalties accruing under this Section shall be due and payable to EPA within thirty (30) days of Respondents' receipt from EPA of a written demand for payment of the penalties, unless Respondents invoke the dispute resolution procedures under Section XVII (Dispute Resolution). All payments to EPA under this Section shall be paid by certified or

cashier's check(s) made payable to "EPA Hazardous Substances Superfund," shall be remitted to:

Mellon Bank, EPA, Region VII Superfund
FNMG Section, P.O. Box 371099M
Pittsburgh, Pennsylvania 15251

Each payment shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID Number 07R8, the EPA Docket Number 07-2012-0051, and the name and address of the party(s) making payment. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to EPA in accordance with Section VII (Designation of Contractor, Project Coordinator and On-Scene Coordinator), and to the Financial Management Officer, Office of Policy and Management, U.S. Environmental Protection Agency, Region VII, 11201 Renner Boulevard, Lenexa, Kansas 66219.

86. The payment of penalties shall not alter in any way Respondents' obligation to complete performance of the Work required under this Settlement Agreement.

87. Penalties shall continue, to accrue during any dispute resolution period, but need not be paid until fifteen (15) days after the dispute is resolved by agreement or by Respondents' receipt of the EPA Superfund Director's decision.

88. If Respondents fail to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondents shall pay Interest on the unpaid balance, which shall begin to accrue on the date of Respondents' receipt of a demand made pursuant to Paragraph 85. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of any Respondents' violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties

pursuant to Sections 106(b) and 122(l) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 106(b) or 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Settlement Agreement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Section XXI, Paragraph 92 of this Settlement Agreement. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XX. COVENANT NOT TO SUE BY EPA

89. In consideration of the actions that will be performed and the payments that will be made by Respondents under the terms of this Settlement Agreement, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take administrative action against Respondents pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work, Past Response Costs, and Future Response Costs. This covenant not to sue shall take effect upon the Effective Date of this Settlement Agreement and is conditioned upon the complete and satisfactory performance by Respondents of all their obligations under this Settlement Agreement, including, but not limited to, payment of Past Response Costs and Future Response Costs pursuant to Section XVI. This covenant not to sue extends only to Respondents and does not extend to any other person.

XXI. RESERVATIONS OF RIGHTS BY EPA

90. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions

necessary to protect public health, welfare or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at or from the Site. Further, nothing in this Settlement Agreement shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

91. The covenant not to sue set forth in Section XX above does not pertain to any matters other than those expressly identified therein. EPA reserves and this Settlement Agreement is without prejudice to, all rights against Respondents with respect to all other matters, including, but not limited to:

A. Claims based on a failure by Respondents to meet a requirement of this Settlement Agreement;

B. Liability for costs not included within the definition of Future Response Costs;

C. Liability for performance of response actions other than the Work;

D. Criminal liability;

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

F. Liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

G. Liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site.

92. Work Takeover. In the event EPA determines that Respondents have ceased implementation of any portion of the Work, are seriously or repeatedly deficient or late in their performance of the Work, or are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. Respondents may invoke the procedures set forth in Section XVII (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States in performing the Work pursuant to this Paragraph shall be considered Future Response Costs that Respondents shall pay pursuant to Section XVI (Payment of Response Costs). Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXII. COVENANT NOT TO SUE BY RESPONDENTS

93. Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States Environmental Protection Agency, or its contractors or employees, with respect to the Work, Past Response Costs, Future Response Costs or this Settlement Agreement, including, but not limited to:

A. Any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law; or

B. any claim arising out of response actions required pursuant to this Settlement Agreement, including any claim under the United States Constitution, the Missouri

Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law.

C. any claim against the United States Environmental Protection Agency pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Site.

94. The covenants not to sue, set forth in Paragraph 93 above, shall not apply in the event the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 91.A, B, C, and E-G, but only to the extent that Respondents' claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

95. Notwithstanding the provisions of Paragraph 93, nothing herein shall limit the ability of any or all of the Respondents to assert any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §. 9607 and 9613, relating to the Work, Past Response Costs or Future Response Costs, relating to or arising from the Site and activities associated with the Site, except that Respondents shall not assert any claims that arise from EPA's activities in conducting response activities at the Site or overseeing response activities at the Site.

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

XXIII. OTHER CLAIMS

97. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. Neither the United States nor the EPA shall be deemed a party to any contract

entered into by Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors or consultants in carrying out actions pursuant to this Settlement Agreement.

98. Except as expressly provided in Section XX (Covenant Not to Sue by EPA), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a Party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

99. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIV. CONTRIBUTION

100. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that each Respondent is entitled, as of the Effective Date of this Settlement Agreement, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for “matters addressed” in this Settlement Agreement. The “matters addressed” in this Settlement Agreement are the Work, Past Response Costs, and Future Response Costs. However, any Respondent who unilaterally withdraws from funding the Work and Future Response Costs as agreed among the Respondents will not receive contribution protection under this Settlement Agreement for “matters addressed” herein if such Work was not undertaken and paid for during that Respondent’s participation in funding the Work.

101. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Respondents have, as of the Effective Date of this Settlement Agreement, resolved their liability to the United States for the Work, Past Response Costs, and Future Response Costs.

102. Nothing in this Settlement Agreement precludes the United States or Respondents from asserting any claims, causes of action, or demands for indemnification, contribution, or cost recovery against any person not a party to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to CERCLA Sections 113(f)(2) and (3), to pursue any such persons to obtain additional response actions or response costs and to enter into settlements that give rise to contribution protection pursuant to CERCLA Section 113(f)(2) provided, however, no such settlement shall abridge Respondents' rights to seek contribution and/or cost recovery from any potentially responsible party not a party to this Settlement Agreement.

XXV. INDEMNIFICATION

103. Respondents shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondents, their officers, directors, employees, agents, contractors or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondents agree to pay the United States all costs incurred by the United States, 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 Respondents, their officers, directors, employees, agents, contractors, subcontractors and any persons acting on Respondents' behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondents in carrying out activities pursuant to this Settlement Agreement. Neither Respondents nor any such contractor shall be considered an agent of the United States.

104. The United States shall give Respondents notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondents prior to settling such claim.

105. Respondents waive all claims 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 any one or more of the Respondents 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, Respondents 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 the Respondents and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

XXVI. INSURANCE

106. At least seven (7) days prior to commencing any on-Site work under this Settlement Agreement, Respondents shall secure, and shall maintain for the duration of this Settlement Agreement, comprehensive general liability insurance and automobile insurance with limits of one million dollars (\$1,000,000), combined single limit. If requested by EPA,

Respondents shall provide EPA with certificates of such insurance and a copy of each insurance policy. In addition, for the duration of the Settlement Agreement, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondents in furtherance of this Settlement Agreement. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondents need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVII. MODIFICATIONS

107. The OSC and the Respondents' Project Coordinator may make modifications to any plan or schedule, including the Work Plan for Removal Action, by mutual agreement, provided such modifications are consistent with the purpose of this Settlement Agreement as set out in Paragraph 5. Any oral modification will be memorialized in writing by EPA promptly, but shall have as its effective date, the date of the oral agreement between the OSC and Respondents' Project Coordinator. Any other requirements of this Settlement Agreement may be modified in writing by mutual agreement of the Parties.

108. If Respondents seek permission to deviate from any approved work plan or schedule, Respondents' Project Coordinator shall submit a written request to EPA's Project Coordinator for approval outlining the proposed modification and its basis. Respondents may not proceed with the requested deviation until receiving written approval from EPA. If such modification is approved orally by the OSC, it shall be memorialized in writing by EPA promptly.

109. If Respondents believe any modification requested by EPA is not appropriate, Respondents may invoke the Dispute Resolution provisions the provisions of Section XVII (Dispute Resolution) of this Settlement Agreement.

110. No informal advice, guidance, suggestion or comment by the OSC or other EPA representatives regarding reports, plans, specifications, schedules or any other writing submitted by Respondents shall relieve Respondents of their obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XXVIII. NOTICE OF COMPLETION OF WORK

111. When EPA determines, after its review of the final Removal Action Report, that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including payment of Future Response Costs and record retention, EPA will provide written notice to Respondents. If EPA, determines that any such Work has not been completed in accordance with this Settlement Agreement, EPA will notify Respondents in writing, provide a list of the deficiencies, and require that Respondents modify the Work Plan for Removal Action, if appropriate, in order to correct such deficiencies. Respondents shall correct the deficiencies and implement the modified and approved Work Plan, if necessary, and shall submit a modified Removal Action Report in accordance with the EPA notice. Failure by Respondents to implement the approved modified Work Plan shall be a violation of this Settlement Agreement.

XXIX. SEVERABILITY/INTEGRATION/APPENDICES

112. If a court or administrative authority issues an order that invalidates any provision of this Settlement Agreement or finds that Respondents have sufficient cause not to comply with

one or more provisions of this Settlement Agreement, Respondents shall remain bound to comply with all provisions of this Settlement Agreement not invalidated or determined to be subject to a sufficient cause defense by the court's or administrative authority's order or decision.

113. This Settlement Agreement constitutes the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendices are attached to and incorporated into this Settlement Agreement:

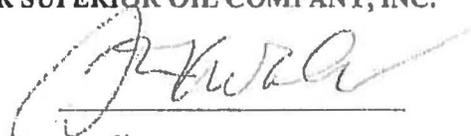
- A. Appendix A - Removal Action Work Plan
- B. Appendix B - Action Memorandum Amendment #1
- C. Appendix C - Map of Site

XXX. EFFECTIVE DATE

114. This Settlement Agreement shall be effective on the first date a fully executed copy of the Settlement Agreement is received by a Respondent.

The undersigned representative of Respondent Superior Oil Company certifies that he/she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind Superior Oil Company, which he/she represents, to this Settlement Agreement.

FOR SUPERIOR OIL COMPANY, INC.

By: 

Name:

STEVEN K WAKEFIELD

Title:

VP OPERATIONS

Agreed this 16TH day of MAY, 2013.

The undersigned representative of Respondent Union Pacific Railroad Company certifies that he/she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind Union Pacific Railroad Company, which he/she represents, to this Settlement Agreement.

FOR UNION PACIFIC RAILROAD COMPANY

By:



Name:

David P. Young

Title:

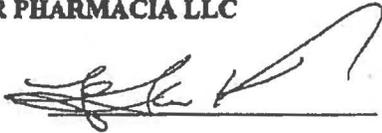
General Solicitor

Agreed this 27 day of June, 2013.

The undersigned representative of Respondent Pharmacia LLC certifies that he/she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind Pharmacia LLC, which he/she represents, to this Settlement Agreement.

FOR PHARMACIA LLC

By:



MMS

Name: L. GLEN KIROVSKI

Title: DIRECTOR, ENV AFFAIRS, MONSANTO, ATTORNEY-IN-FACT FOR PHARMACIA LLC.

Agreed this 28th day of MAY, 2013.

The undersigned representative of Respondent Honeywell International Inc. certifies that he/she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind Honeywell International Inc., which he/she represents, to this Settlement Agreement.

FOR HONEYWELL INTERNATIONAL INC.

By: 
Name: Troy Kennedy
Title: Remediation Director

Agreed this 17th day of May, 2013.

FOR U.S. ENVIRONMENTAL PROTECTION AGENCY

By: J. Scott Pemberton

Name: J. Scott Pemberton

Title: Senior Assistant Regional Counsel Region VII, EPA

Agreed this 23rd day of July, 2013.

IT IS SO AGREED AND ORDERED

By: Cecilia Tapia

DATE: 7/23/13

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



global environmental solutions

Work Plan for Removal Action
Former Thompson Chemical Site
60 Chouteau Avenue
St. Louis, Missouri

SLR Ref: 111.00431.00001

April 2013

Prepared by
SLR International Corporation
597 – 599 Industrial Drive, Suite 211
Carmel, Indiana 46032

Prepared On Behalf of:
Thompson Chemical Site Respondents

Prepared for
US Environmental Protection Agency Region 7 SUPR/PPSS
8600 NE Underground Rd., Pillar 253
Kansas City, Missouri 64161

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FIGURES

Figure 1	Property Location Map
Figure 2	Site Plan

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- Appendix A Off-Site Acceptability Determinations
- Appendix B Surfactant Material Safety Data Sheet
- Appendix C Project Schedule

1. INTRODUCTION

This Work Plan for Removal Action (Work Plan) has been prepared by SLR International Corporation (SLR) for the Thompson Chemical Site Respondents (TCR) concerning the former Thompson Chemical property located at 60 Chouteau Avenue in St. Louis, Missouri (the "Site").

This document has been prepared with the cooperation and approval of the United States Environmental Protection Agency (USEPA). The removal actions that are contemplated by this Work Plan include the offsite disposal of Resource Conservation and Recovery Act (RCRA) nonhazardous materials in a RCRA Subtitle C hazardous waste landfill, or a similar USEPA-approved USEPA facility. These consist of:

- Approximately 300 cubic yards (CY) of soil and lesser amounts of debris contained in 12 25-CY rollofs, including the rollofs.
- 238 55-gallon drums containing: investigation derived waste (IDW), miscellaneous debris, used sorbent booms, bricks, and other materials from Site cleanup activities.
- Approximately 400 CY of soil currently contained in a berm at the Site.
- Other materials disposed of by the TCR as part of the removal efforts.

Activities were implemented during September 2011 and 2012 to characterize these materials for waste disposal purposes. For additional details on the characterization efforts, analytical methods, analytical results, conclusions, sampling locations, laboratory reports, etc., please refer to the following:

- December 8, 2011, Waste Disposal Profiling Investigation Report, prepared by SLR.
- November 27, 2012, Soil Berm Waste Profiling Investigation Report, prepared by SLR.

The Site is an active solvent distribution facility encompassing approximately 2.5 acres located 300 feet west of the Mississippi River (Section 26, Township 45N, Range 7E). The Site is bounded by Chouteau Avenue on the north, South Leonor K. Sullivan Boulevard on the east, Convent Street on the south, and the Missouri Pacific Railroad line on the west. A Site location map is presented as Figure 1.

The Site is located in an urban/industrial area in the city of St. Louis, Missouri. The area surrounding the Site is zoned for "any use" and has been used for industrialized purposes since the early 1800s. Currently, land use in the area consists of manufacturing and warehouse operations. Historically, various industrial operations took place at the Site including chemical manufacturing by Thompson Chemical Company. Figure 2 presents the current Site configuration.

1.1 PROJECT PURPOSE

The work is being implemented consistent with an *Administrative Settlement Agreement and Order on Consent for Removal Action (AOC)* and an April 1, 2004 Engineering Evaluation/Cost Analysis (EE/CA) report prepared under a previous AOC with USEPA that pertained to the EE/CA. The EE/CA recommended, in part, the disposal of the materials addressed in Sections 3.0 through 5.0 of this Work Plan, as feasible and dependent upon available cost effective disposal options. This Work Plan is not intended to address any other recommendations contained in the EE/CA.

The purpose of this Work Plan is to specify procedures for the removal and offsite transport of the above-referenced RCRA nonhazardous material for disposal in a RCRA Subtitle C hazardous waste landfill, or a similar USEPA-approved facility.

Prior to removal efforts, a Site-specific Health and Safety Plan (HASP) will be developed for the work conducted pursuant to the AOC. The HASP will be provided as a separate document to this Work Plan and will present the minimum health and safety requirements that will be established to maintain a safe working environment. Subcontractors to SLR and other contractors who may be operating at the Site will be responsible for developing, maintaining, and implementing their own health and safety programs, policies, and procedures.

Note that the procedures and schedules outlined in this Work Plan and the HASP may be altered or modified by the TCR in coordination with USEPA based on encountered field conditions, or other circumstances.

1.2 PREVIOUS VERSION/REVISIONS OF WORK PLAN

This Work Plan for Removal Action supersedes versions previously submitted to USEPA, including the April 16, 2012 Work Plan. It incorporates modifications to the project approach agreed upon with USEPA, modifications based on USEPA's July 3, 2012 comment letter to the April 16, 2012 Work Plan, and subsequent communications from USEPA to the TCR dated March 27, 2013.

1.3 WORK PLAN ORGANIZATION

The Work Plan is organized in the following sections. A brief description of each section is presented below:

- Section 1.0 – Introduction: Section 1.0 provides a brief Site description, background information and an overview of the Work Plan.
- Section 2.0 – Project Organization: Section 2.0 describes the project organization and the responsibilities of the key project team members.
- Section 3.0 – Rolloff Disposal Management: Section 3.0 provides procedures that will be implemented to transfer the rolloff contents into other containers, manage the empty rolloffs, and to transport the materials to the designated offsite disposal facility.
- Section 4.0 – IDW/Metropolitan Sewer District (MSD) Drum Disposal Management: Section 4.0 provides procedures that will be implemented to manage and transport the drums to the designated offsite disposal facility.
- Section 5.0 – Berm Disposal Management: Section 5.0 provides procedures that will be implemented to transport the material in the soil berm to the designated offsite disposal facility.
- Section 6.0 – Schedule: Section 6.0 provides a schedule and rationale in terms of sequencing the work.
- Section 7.0 – Project Reporting: Section 7.0 covers project reporting including Progress Reports and the Final Report which will summarize the material disposal efforts.

2. PROJECT ORGANIZATION

2.1 PROJECT TEAM

The individuals participating in the project and their specific roles and responsibilities are as follows:

Project Coordinator – Oren J. Gottlieb, SLR. The Project Coordinator will serve as the point of contact with the TCR and USEPA's On-Scene Coordinator (OSC).

Project Manager – Mike Kasnick, SLR. The Project Manager will coordinate the project activities and his specific responsibilities shall include:

1. Developing specific procedures for transferring the contents of the on-Site rollofs to facilitate disposal efforts.
2. Coordinating the offsite disposal of materials contained in the rollofs, IDW drums, MSD drums, and berm.
3. Observing and recording project activities.
4. Maintaining an inventory of disposal activities including associated manifests and transportation documentation.
5. Keeping the Project Coordinator, OSC, and TCR apprised of Site activities.
6. Reporting to the SLR Client Manager and the USEPA Project Manager regarding the project status.
7. Preparation of Progress Reports and other reports required by the USEPA.

USEPA Region VII OSC – Mike Davis, USEPA. The OSC is the federal official responsible for monitoring or directing response actions on behalf of the federal government. The OSC coordinates all federal efforts with, and provides support and information to, local, state and regional response communities.

Property Operator – Superior Solvents and Chemicals, 60 Chouteau Avenue, St. Louis, Missouri 63102. The Property Operator will provide access to the property.

Field Team – Environmental Restoration LLC (ER), 1666 Fabick Drive, St. Louis, Missouri 63026. ER will provide the equipment and personnel to perform the field work. ER has the appropriate level of personal protective equipment (PPE) and personnel training, has worked at the Site in the past, is familiar with the facility operations and safety practices and has worked on sites where dioxin is present.

Dust Monitoring Services – EFI Global Inc (EFI), 8091 Center Run Drive, Suite 191, Indianapolis, IN 46250. EFI will be responsible for conducting dust monitoring services during the field work activities.

2.2 DESIGNATED OFF-SITE DISPOSAL FACILITIES

The designated offsite disposal facilities that may be used for the materials produced during this work are listed below. These facilities are RCRA Subtitle C landfills, are permitted to receive hazardous waste and have received offsite approval pursuant to Section 121(d)(3) of the

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as of March 2, 2012 (US Ecology, Robstown, Texas) and March 12, 2012 (Clean Harbors, Waynoka, Oklahoma). Copies of the CERCLA offsite acceptability determinations are included in Appendix A.

US Ecology (Robstown, Texas):

**Petronila Road
Robstown, Texas 78380
TXD069452340**

The Robstown facility is a hazardous waste treatment, storage and disposal facility permitted under Subtitle C of RCRA. The facility is permitted to store polychlorinated biphenyl (PCB) waste for offsite shipment and to treat and dispose of RCRA, PCB and Nuclear Regulatory Commission (NRC)-exempt radioactive waste.

Clean Harbors (Lone Mountain, Oklahoma)

**Clean Harbors Lone Mountain, LLC
5 Miles East & 1 Mile North of Highway Junction 281 & 412
Waynoka, Oklahoma 73860
OKD065438376**

The Lone Mountain Facility is a RCRA Subtitle C permitted landfill. The facility handles direct landfill disposal for solids (bulk and containerized) and solidification of waste liquid or waste containing free liquids prior to landfill disposal, as well as stabilization of metal constituents. Additional capabilities include: oxidation of some low concentration organic constituents; deactivation of reactive cyanides/sulfides and neutralization of acids/bases; micro and macro-encapsulation of RCRA regulated debris; lab packs for direct landfill disposal; acceptance of PCB bulk product waste and PCB contaminated soil and debris that meets the definition of PCB remediation waste for direct landfill disposal; and treatment for certain bulk aqueous wastes.

In addition to the above designated offsite disposal facilities, the following facilities are provided as alternatives since they are RCRA Subtitle C hazardous waste landfills, or a similar USEPA-approved facility, and have communicated that they would also be able to accommodate the waste:

Chemical Waste Management of the Northwest
17629 Cedar Springs Lane
Arlington, Oregon 97812
ORD089452353

Chemical Waste Management
36964 Hwy. 17 North
Emelle, Alabama 35459
ALD000622464

Bennett Environmental
Canada
80, rue des Mélèzes
Saint Ambroise, QC Canada
G7P 2N4

3. ROLLOFF DISPOSAL MANAGEMENT

3.1 BACKGROUND

Soil associated with the 1987 buried steel railcar tanker removal is currently stored in twelve (12) 25-CY rollofs. These rollofs are entirely enclosed, sealed with lock down steel lids, and covered with tarps to shed precipitation and protect the rollofs from the elements.

In September 2011, the rollofs were sampled in order to determine if the material in the rollofs is a characteristically hazardous waste. This work was performed in accordance with procedures outlined in an August 25, 2011 *Waste Disposal Profiling Investigation Work Plan*.

The results of this investigation were summarized in a December 8, 2011 *Waste Disposal Profiling Investigation Report*. This report concluded that that material in the rollofs was not a characteristically hazardous waste and the report was subsequently approved by the USEPA, in coordination with MDNR, in a January 10, 2012 letter from the USEPA to SLR.

3.2 ROLLOFF MANAGEMENT OBJECTIVES AND GENERAL PROCEDURES

The objective of the rolloff management plan is the offsite disposal of the material in the twelve 25-CY rollofs located at the Site. Each rolloff is on the order of 25 CY in capacity and has been filled to near maximum capacity. They are likely too heavy to transport over the road as-is and will require the transfer of their load into other containers prior to transportation.

The Work Plan approach is to transfer the entire contents of the rollofs into other containers suitable for offsite disposal. As portions of the steel tankcar, tar, debris, and other non-soil material are encountered, this material will be physically separated from the soil and will be placed in one or more of the empty 25 CY rollofs specifically designated for this purpose (note: the 25 CY rollofs should be able to handle this material since, with the exception of the steel railcar, the other debris is relatively light in comparison to the soil). After each rolloff is emptied, the rollofs will have their lids secured and will be transported offsite to the designated Subtitle C hazardous waste landfill facility for disposal.

In order to achieve this objective, the following general procedures will be used during the rolloff management efforts:

- The work will be documented with photographs as well as field notes.
- Work will be implemented in such a manner to minimize and/or prevent fugitive dust emissions. A particulate monitoring program will be employed at the Site throughout rolloff management program. This will consist of real-time monitoring of particulate matter less than ten microns in size (PM₁₀) and will included one upwind and two downwind stations to monitor conditions around the work zone. For additional detail on the particulate monitoring program, including dust action levels, please refer to the Site-specific HASP.

- Work will be implemented in such a manner as to minimize worker exposures in compliance with Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.120 and other applicable federal, state, and local laws, regulations and statutes. It is anticipated that the work will be performed in the exclusion zones in modified Level C PPE. This will consist of wearing Tyvek suits with taped gloves and boot covers and respirators with dust and Volatile Organic Compounds (VOC) cartridges. All workers will remove their disposable PPE prior to leaving the exclusion zone. It is anticipated that used PPE will be added to the existing PPE and debris at the Site. For additional detail on minimizing worker exposures, please refer to the Site-specific HASP.

3.3 PROCEDURES FOR MANAGING THE TRANSFER OF ROLLOFF CONTENTS

This process will be conducted in a manner to minimize the potential for releasing dust. In addition, the following protocol will apply:

- The transfer of rolloffs contents will be performed one rolloff at a time. No more than one rolloff will have its lid removed at any given time.
- After the contents of a rolloff are transferred, its lid will be replaced and secured before any work is performed on the next rolloff.
- The transfer of rolloff contents will be suspended during periods of high winds, excessive rainfall, or under any other conditions that are considered to present unsafe conditions (e.g., lightning, excessive heat, etc.). The decision to suspend operations shall be made by the field crew, Project Manager, Superior, OSC, or any other Site personnel, as appropriate.

In general, the procedures for transferring the contents of each rolloffs will be as follows:

1. Each rolloff is covered with a tarp to protect the rolloff lids from the elements. One or more of these tarps will be removed to accommodate removal and temporary holding of the rolloff lids.
2. Each individual rolloff lid will be removed immediately prior to transfer of the contents of the specific rolloff.
3. A conventional crane, deck crane, or similar equipment will be used to remove each lid prior to sampling. Each lid was constructed with lifting lugs. Removal will be facilitated by attaching a chain or sling to the lugs so that the crane can safely remove the lid.
4. The crane will be used to gently lift each lid. Due to space limitations, it may be possible to place one box lid atop an adjacent, plastic covered rolloff lid.
5. The contents of each rolloff will be removed with conventional construction equipment (e.g., crawlers, wheeled excavators rubber tire excavators, trackhoes, backhoes, mini- or

compact excavators, etc.) or similar equipment. A rubber tire skid loader (e.g., Bobcat) or similar equipment may also be used in conjunction with the excavator to help facilitate the operation.

6. Soil from the rollofs will be live-loaded into rollofs, tri-axle trucks, end-dumps, intermodals, or similar equipment for transport offsite. This equipment will be lined with High Density 6-Mil Polyethylene plastic sheeting, or similar material, prior to placement of the material. The area where this equipment is staged for loading will also be covered with a layer of High Density 6-Mil Polyethylene plastic sheeting, or similar material, to serve as containment. In the event some soil is inadvertently spilled onto the sheeting, it will be removed and combined with the other soil for offsite disposal. The plastic sheeting will be replaced as often as necessary to insure its integrity.
7. After the disposal container has been filled to capacity, the soil will be covered with High Density 6-Mil Polyethylene plastic sheeting, or similar material, and the disposal container will be secured and anchored with a tarpaulin, fitted lid, or other such similar sift-proof cover that is compliant with Department of Transportation (DOT) requirements for transportation of hazardous materials. The soil may then be transported to the designated offsite disposal facility.
8. The 25 CY rolloff(s) that is/are selected to store portions of the steel tankcar, tar, debris, and other non-soil material will have its/their lid(s) replaced at the end of the day or as often as necessary to control dust and/or prevent precipitation from accumulating in the rolloff. When all transfer activities are complete, this/these rolloff(s) will ultimately have its/their lid(s) secured for transport to the designated offsite disposal facility.
9. The soil may also be placed into sift proof-compliant multi-cubic yard containment bags on an interim basis prior to transport offsite. These containment bags seal shut and can be temporarily staged at the Site prior to being loaded into rollofs, tri-axle trucks, end-dumps, intermodals, or similar equipment for transport offsite.

3.4 PROCEDURES FOR MANAGING EMPTY ROLLOFFS

After the rolloff is empty, the rollofs will have their lids secured and will be transported to the designated offsite disposal facility.

Due to space limitations, the rollofs will likely be transported offsite as soon as practicable.

3.5 DECONTAMINATION PROCEDURES

The work will be performed in a manner that limits the equipment that comes into contact with the material. For purposes of the removal activities, the only equipment that will come into contact with the material will be the excavator bucket(s). At the conclusion of the efforts, SLR proposes to dispose of the buckets that come into contact with the material at the designated offsite disposal facility.

3.6 RESIDUALS MANAGEMENT

Used PPE may either be stored in the designated rolloff and/or 55-gallon drums for disposal purposes. The drummed material will be grouped and disposed of with the IDW/MSD materials. Prior to disposal, SLR will complete a hazardous waste determination either through analysis or generator knowledge. If generator knowledge is used to make a hazardous waste determination, SLR will present the rationale and document that there is sufficient information to make an accurate knowledge-based waste determination. If it is determined that the waste material is not characteristically hazardous and may be land disposed without prior treatment, the material will be grouped and transported along with the IDW/MSD drums to the designated offsite disposal facility.

3.7 TRANSPORTATION OF MATERIALS TO DESIGNATED OFFSITE DISPOSAL FACILITIES

Soil from the rolloffs will be containerized in rolloffs, tri-axle trucks, end-dumps, intermodals, or similar equipment. After the equipment is filled and sealed shut, it will be temporarily staged at the Site or will be transported to the designated offsite disposal facility. The company that performs this function will be appropriately permitted and licensed for such purposes.

4. IDW/MSD DRUM DISPOSAL MANAGEMENT

4.1 BACKGROUND

There are currently 238 55-gallon drums containing IDW and MSD material from previous investigations and response efforts at the Site. These drums contain soil drilling cuttings, water, oil, used PPE, bricks, and other miscellaneous debris. The drums are currently staged on pallets that are located inside two on-Site trailers that have been specifically designated for storage of these drums. The following provides an overview of the drum inventory:

**Thompson Chemical Drum Inventory Summary
(Current: January 18, 2012)**

MATRIX	NO. DRUMS	COMMENTS
Water	4	Includes IDW-23
Soil	12	Includes IDW-2, IDW-8, IDW-11, IDW-22
Booms	182	
Bricks	18	
PPE/Other Debris	20	Includes vermiculite/floor dry drums (IDW-10, MSD-7, MSD-9) and IDW-21
Oil/Water	2	Includes oily water/boom drum (MSD-36)
Total:	238	

4.2 DRUM MANAGEMENT OBJECTIVES AND GENERAL PROCEDURES

The objective of the drum management plan is the offsite disposal of IDW/MSD drums as well as any additional material that is produced during the implementation of this Work Plan.

The Work Plan approach will be to transfer the drums from the trailers in which they are currently stored to enclosed trailers, flatbed trailers (covered with tarps or other sheeting), or other appropriate transport equipment as long as the shipping company is appropriately permitted and licensed for such purposes. During this process, the drums will be inventoried and their overall condition will be visually assessed. The drums will remain closed and it will not be necessary to remove their lids to perform this work. Since no personnel will come into contact with the drummed materials, the work should be able to be performed in standard Level D PPE without particulate dust monitoring.

The following general procedures shall be used during the drum management efforts:

- The work will be documented with photographs as well as field notes.
- Work will be implemented in such a manner as to minimize worker exposures in compliance with OSHA regulation 29 CFR 1910.120 and other applicable federal, state,

and local laws, regulations and statutes. It is anticipated that the work will be performed in Level D PPE.

4.3 PROCEDURES FOR MANAGING DRUMS

In general, the procedures for transferring the contents of each trailer will be as follows:

- At no time will the lid of any drum be removed. All drums will be kept sealed so that there is no potential to come into contact with the drum contents. Drum lids will be checked to ensure that they are tightly sealed. Drum ring-lock bolts/lids will be tightened and/or secured, as necessary.
- The facility docks will be used to transfer the drums from their current storage to transport trailers that will be used to ship them to the designated offsite disposal facility. Drums will be transferred directly from their storage trailer to the trailer or transport that will be used to ship them to the designated offsite disposal facility.
- Unloading operations will be performed one trailer at a time.
- Drums will be transported on pallets with a forklift, or similar equipment.
- As drums are removed from the designated trailer, they will be inventoried and visually assessed for condition. During this process, they will be over-packed if necessary.
- These activities will be suspended under any conditions that are considered to present unsafe conditions by the field crew, Project Manager, Superior, OSC, or any other Site personnel.

4.4 TRANSPORTATION OF MATERIALS TO DESIGNATED OFFSITE DISPOSAL FACILITIES

The drums will be transported to the designated offsite disposal facility. The company that performs this function will be appropriately permitted and licensed for such purposes.

5. BERM DISPOSAL MANAGEMENT

5.1 BACKGROUND

A tank farm, consisting of 22 aboveground storage tanks (ASTs), was formerly located in the central portion of the Site. Although the ASTs associated with this tank farm were removed a number of years ago, the earthen berm that was used as secondary containment for the tanks still remains. Reportedly, the earthen berm was constructed by pushing surface soil to the center of the Site and forming this soil into a secondary containment berm for the ASTs. The berm surrounds the perimeter of the former tank farm area and is currently covered with a synthetic liner except for a 4-foot high concrete wall which comprises a section on the north side of the berm. This soil berm is roughly rectangular in shape, approximately 75 feet by between 150 and 75 feet in length and approximately 3 to 6 feet in height. The earthen berm contains approximately 400 CY of soil. Soil sampling of the berm soil materials conducted in coordination with USEPA indicated that the berm soil is not a characteristically hazardous waste.

Figure 2 shows the approximate location of this earthen berm. The following procedures will be used to remove and dispose of the soil in the berm at the designated offsite disposal facility as non-hazardous waste at a RCRA Subtitle C facility.

5.2 BERM MANAGEMENT OBJECTIVES AND GENERAL PROCEDURES

The objective of the berm management plan is the excavation, transportation, and offsite disposal of the soil in the earthen berm as a non-hazardous waste. Currently it is estimated that the entire berm contains approximately 400 CY of soil.

The Work Plan approach will be to remove only enough of the existing liner covering the berm to facilitate the volume of soil that can be removed in one day. The berm soil will be removed, flush to grade. Removal will most likely be performed with conventional construction equipment (e.g., crawlers, wheeled excavators, rubber tire excavators, trackhoes, backhoes, mini- or compact excavators, etc.) equipped with a 2 CY bucket, or similar equipment. A rubber tire skid loader (e.g., Bobcat or similar equipment) may also be used in conjunction with the excavator to help consolidate material during the operation.

Soil from the berm will be live-loaded into rollofs, tri-axle trucks, end-dumps, intermodals, or similar equipment for transport to the designated offsite disposal facility. Prior to loading, their beds will be lined with High Density 6-Mil Polyethylene plastic sheeting (or similar material). After they are filled to capacity, High Density 6-Mil Polyethylene plastic sheeting (or similar material) will be placed on top of the soil to cover it and the bed will be secured and anchored with tarpaulins, fitted lid, or other such similar sift-proof cover that is compliant with DOT requirements. After this is complete, the soil will be transported to the designated offsite disposal facility.

In order to achieve this objective, the following general procedures shall be used during the sampling efforts:

- The work will be documented with photographs as well as field notes.
- Precautions will be taken to reduce the potential to release dust while removal activities are being implemented by applying water or water mixed with a surfactant to the surface of the soil. The surfactant shall consist of a consumer liquid detergent such as Dawn, Ivory, or Joy. Such surfactants contain benign levels of ethyl alcohol and Subtilisin, which is a non-specific protease (a protein-digesting enzyme) widely used in laundry and dishwashing detergents, cosmetics, food processing, skin care ointments, and contact lens cleaners. Refer to Appendix B for a material safety data sheet for the surfactant. For additional detail on fugitive dust control s, please refer to the Site-specific HASP.
- A particulate monitoring program will be employed at the Site throughout the berm management process. This will consist of real-time monitoring of particulate matter less than ten microns in size (PM₁₀) and will included one upwind and two downwind stations to monitor conditions around the work zone. For additional detail on the particulate monitoring program, including dust action levels, please refer to the Site-specific HASP.
- Work will be implemented in such a manner as to minimize worker exposures in compliance with OSHA regulation 29 CFR 1910.120 and other applicable federal, state, and local laws, regulations and statutes. It is anticipated that the work will be performed in the exclusion zones in modified Level C PPE. This will consist of wearing Tyvek suits with taped gloves and boot covers and respirators with dust and VOC cartridges. All workers will remove their disposable PPE prior to leaving the exclusion zone. It is anticipated that used PPE will be added to the existing PPE and debris at the Site. For additional detail on minimizing worker exposures, please refer to the Site-specific HASP.

5.3 PROCEDURES FOR MANAGING BERM REMOVAL

This process will be conducted in a manner to minimize the potential for releasing dust. In addition, the following protocol will apply:

- Prior to removal, the liner overlying the earthen berm will need to be removed. However, the length of the section that is removed at any one time will be limited to no more than the amount of soil that can practically be expected to be removed during the work day.
- During the berm removal activities, it will be important to monitor the weather so that runoff associated with precipitation does not inadvertently cause erosion to any portion of the exposed berm. If there is a reasonable potential for a storm and/or significant precipitation to occur that could reasonably cause erosion, then work will be temporarily suspended. At that time, the liner and/or High Density 6-Mil Polyethylene plastic sheeting (or similar material) will be replaced and secured to protect the berm from erosion. Work may be resumed when appropriate conditions return.
- At the conclusion of daily activities, any remaining exposed berm will be covered with the liner and/or High Density 6-Mil Polyethylene plastic sheeting (or similar material). This liner/sheeting will be secured to protect the berm from erosion.

- The removal of berm soil will be suspended during periods of high winds, excessive rainfall, or under any other conditions that are considered to present unsafe conditions (e.g., lightning, excessive heat, etc.). The decision to suspend operations will be made by the field crew, Project Manager, Superior, OSC, or any other Site personnel.

In general, the procedures for transferring the soil will be as follows:

1. The portion of the soil berm that is going to be removed for disposal will have its protective liner removed.
2. The removal will most likely be performed with an excavator equipped with a 2 CY bucket, or similar equipment. A rubber tire skid loader (e.g., Bobcat or similar equipment) may also be used in conjunction with the excavator to help consolidate material during the operation.
3. The berm soil will be removed so that it is flush, or topographically uniform, with the existing grade elevation.
4. Soil from the berm and the accompanying sections of the liner will be live-loaded into rollofs, tri-axle trucks, end-dumps, intermodals, or similar equipment for transport offsite. This equipment will be lined with High Density 6-Mil Polyethylene plastic sheeting, or similar material, prior to placement of soil. The area where this equipment is staged for loading will also be covered with a layer of High Density 6-Mil Polyethylene plastic sheeting, or similar material, to serve as containment. In the event some soil is inadvertently spilled onto the sheeting, it will be removed and combined with the other soil for offsite disposal. The plastic sheeting will be replaced as often as necessary to insure its integrity.
5. After the rollofs, tri-axle trucks, end-dumps, intermodals, or similar equipment, have been filled to capacity, the soil will be covered with High Density 6-Mil Polyethylene plastic sheeting and the bed will be secured with a tarpaulin, fitted lid, or other such similar silt-proof cover that is compliant with DOT requirements. The soil may then be transported to the designated offsite disposal facility.
6. The soil may also be placed into sift proof-compliant multi-cubic yard containment bags on an interim basis prior to transport offsite. These containment bags seal shut and can be temporarily staged at the Site prior to being loaded into rollofs, tri-axle trucks, end-dumps, intermodals, or similar equipment for transport offsite.

5.4 RESTORATION OF BERM

As the soil is removed, the area will be backfilled, as required, with self-compacting gravel. Prior to backfilling with gravel, a filter fabric will be placed to help provide stability. After backfilling is completed, the area including the center of the berm will be paved with asphalt. The asphalt will function as a cap and prevent exposure to surface soil and runoff. The former tank farm area may be subject to future removal work not covered under this AOC. It will also

be of sufficient thickness and installed in a manner to allow it to bear the weight of heavy vehicles (e.g., tractor trailers) that could conceivably drive over it.

5.5 PROCEDURES FOR DECONTAMINATION OF EQUIPMENT

The work will be performed in a manner that limits the equipment that comes into contact with the material. For purposes of the removal activities, the only equipment that will come into contact with the material will be the excavator bucket(s). At the conclusion of the efforts, SLR proposes to dispose of the buckets that come into contact with the material at the designated offsite disposal facility.

5.6 RESIDUALS MANAGEMENT

Used PPE will be temporarily stored in properly labeled 55-gallon drums at the property. Prior to disposal, SLR will complete a hazardous waste determination either through analysis or generator knowledge. If generator knowledge is used to make a hazardous waste determination, SLR will present the rationale and document that there is sufficient information to make an accurate knowledge-based waste determination. If it is determined that the waste material is not characteristically hazardous and may be land disposed without prior treatment, the material will be grouped and transported along with the IDW/MSD drums to the designated offsite disposal facility.

5.7 TRANSPORTATION OF MATERIALS TO DESIGNATED OFFSITE DISPOSAL FACILITIES

Soil from the berm removal will be containerized in rolloffs, tri-axle trucks, end-dumps, intermodals, or similar equipment for transport to the designated offsite disposal facility. This will be performed by a company that is appropriately permitted and licensed for such purposes.

6. SCHEDULE

A proposed project schedule, in Gantt format, is provided as Appendix C. It provides a summary of the overall project timeline as well as the relative duration and sequencing of individual project tasks. This schedule is based on an assumed AOC signing date and the procedures and tasks as described in this Work Plan and the HASP submitted to USEPA. Also, field conditions such as weather conditions could affect the project schedule.

- Rolloff Management: Disposal of the material in the rolloffs will be implemented first. Any residual materials (e.g., used PPE, plastic sheeting, decontamination water, etc.) resulting from these activities can be combined with the IDW/MSD drums for disposal.
- Berm Removal: Berm soil removal and disposal will be implemented next. Residual material resulting from the berm removal activities can be combined with the IDW/MSD drums for disposal.
- IDW/MSD Drum Management: The final activity in the sequence should be the IDW/MSD drum management efforts. In this manner, all residuals produced during implementation of this Work Plan can be transported offsite at one time and no materials remain at the Site.

7. PROJECT REPORTING

The following reporting will be performed as part of the Work Plan activities. Unless otherwise directed, it is anticipated that a minimum of three hard copies and an electronic copy (Adobe pdf) of each report will be provided.

7.1 PROGRESS REPORTING

Written Progress Reports will be submitted to the USEPA 30 days from the date of approval of this Work Plan and thereafter on 30-day intervals until the conclusion of the project. The Progress Reports will describe significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolution of past or anticipated problems.

7.2 FINAL REPORT

Within 60 days after completion of the project, a Final Report summarizing the actions taken under this Work Plan will be submitted for USEPA review. The Final Report will conform, at a minimum, with the requirements set forth in Section 300.165 of the National Contingency Plan (NCP) entitled "OSC Reports." The Final Report will include a good faith estimate of total costs or a statement of actual costs incurred in complying with this Work Plan, a listing of quantities and types of materials removed offsite or handled on-Site, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation produced during the removal action (e.g., manifests, invoices, bills, contracts, chain of custody forms and field sheets, copies of field log book notes from the SLR Project Coordinator and Project Manager, and permits).

The Final Report will also include the following certification signed by a person who supervised or directed the preparation of that report:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

FIGURES

- Figure 1 Property Location Map
- Figure 2 Site Plan

Last Saved: Tuesday, March 13, 2012 10:03:02 AM by egoodwin Drawing path: N:\Portland\Figures\Indiana\Thompson Chemical\Site Plan-2.dwg



REFERENCED FROM : GOOGLE EARTH PRO
LICENSED TO SLR INTERNATIONAL CORP



THOMPSON CHEMICAL
60 CHOUTEAU AVENUE
ST. LOUIS, MISSOURI

Drawing
PROPERTY LOCATION MAP

Date	July 5, 2011	Scale	AS SHOWN	Fig. No.	1
File Name	Site Plan-2-1	Project No.	111.00431.00001		

NOTES

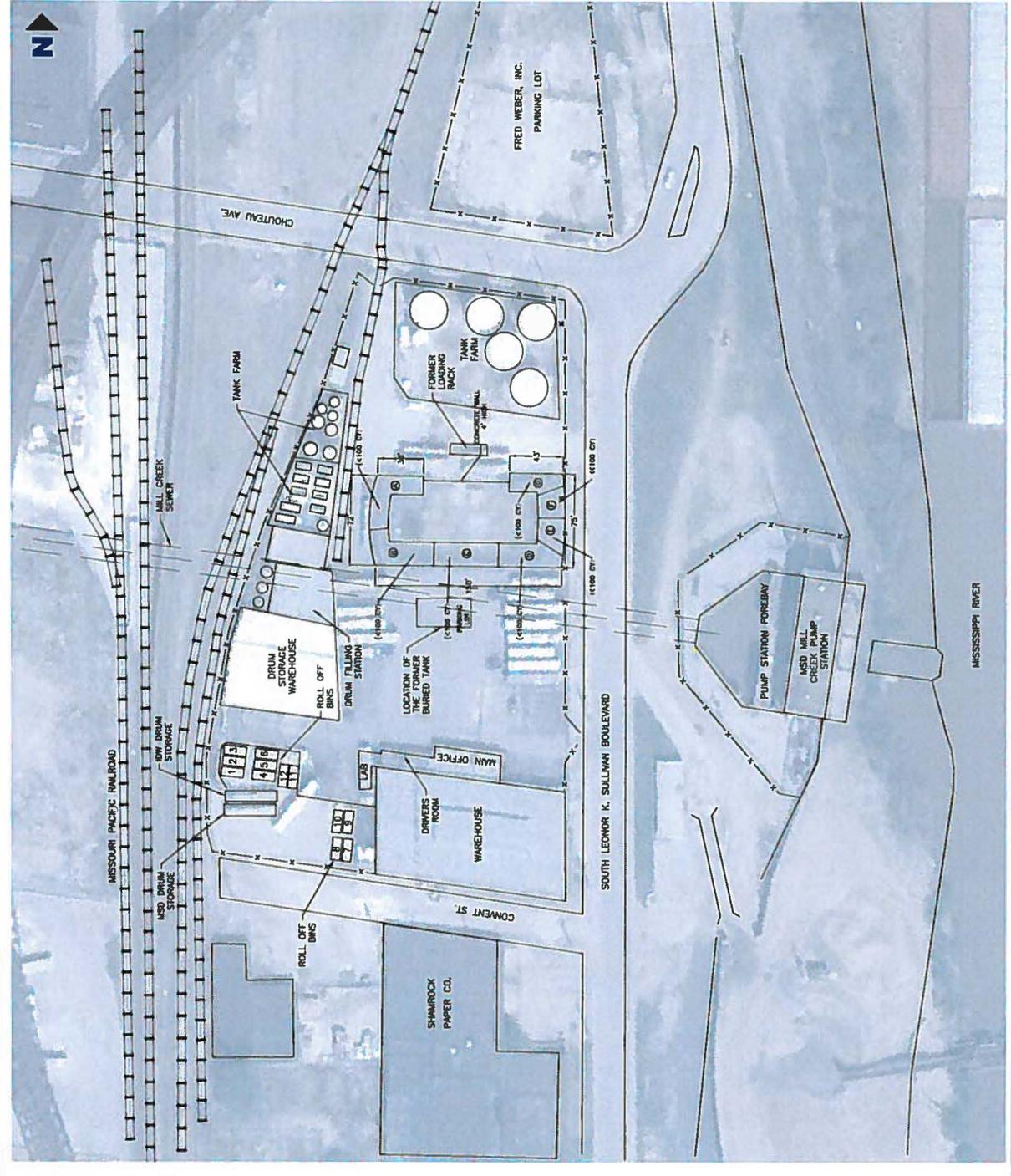
LEGEND



THOMPSON CHEMICAL
60 CHOUTEAU AVENUE
ST. LOUIS, MISSOURI

Drawing
SITE PLAN

Date: February 21, 2012
 Scale: AS SHOWN
 Project No.: 111.00431.00001
 File Name: Structures-3
 P/Ip. No.: 2
 22118 20TH AVENUE SE
 BLDG. G, SUITE 202
 BOTHELL, WA 98021
SLR
 P: 425-350-8800
 F: 425-350-8800



APPENDIX A

OFFSITE ACCEPTABILITY DETERMINATIONS

From: [Oren Gottlieb](#)
To: [Michael Kasnick](#)
Subject: FW: Off-Site Rule - Request for Facility Determination
Date: Friday, April 13, 2012 4:51:58 PM

Oren Gottlieb

Principal Scientist

SLR International Corp

Email: ogottlieb@slrconsulting.com

Cell: 317-519-9684

Office: 317-876-3940

597-599 Industrial Drive, Suite 211, Carmel, IN, 46032, United States

From: MichaelB Davis [mailto:Davis.MichaelB@epamail.epa.gov]
Sent: Tuesday, March 13, 2012 9:19 AM
To: Oren Gottlieb
Subject: Fw: Off-Site Rule - Request for Facility Determination

The Clean Harbors Lone Mountain facility was approved by the EPA Regional Off-Site Coordinator. FYI - CERCLA off-site approval is not facility specific, it is site & shipment specific. Which means, you or I will need to get approval from the off-site coordinator in whatever EPA region the selected disposal facility is located.

Mike Davis
On-Scene Coordinator
U.S. EPA Region 7 SUPR/PPSS
901 N. 5th Street
Kansas City, KS 66101
office: (913) 551-7328
cell: (816) 682-5906

----- Forwarded by MichaelB Davis/R7/USEPA/US on 03/13/2012 08:06 AM -----

From: Wilkin Shannon/R6/USEPA/US
To: MichaelB Davis/R7/USEPA/US@EPA
Date: 03/12/2012 03:39 PM
Subject: Re: Off-Site Rule - Request for Facility Determination

Hello Mike, how are you? The Clean Harbors Lone Mountain, Waynoka, OK facility (EPA ID #OKD065438376) is acceptable for CERCLA waste. Last inspected 04/21/11.

Wilkin Ronald Shannon
Hazardous Waste Enforcement Branch
Compliance Assurance & Enforcement Division
U.S. EPA Region 6
(214) 665-2282 - voice
(214) 665-7264 - fax
shannon.wilkin@epa.gov

▼ MichaelB Davis---03/12/2012 11:52:17 AM---Ron, Per my voicemail message, I am also requesting an off-site rule determination to ship the same

From: MichaelB Davis/R7/USEPA/US
To: Wilkin Shannon/R6/USEPA/US@EPA
Date: 03/12/2012 11:52 AM
Subject: Re: Off-Site Rule - Request for Facility Determination

Ron,

Per my voicemail message, I am also requesting an off-site rule determination to ship the same waste itemized in my prior request from the Superior Solvents & Chemicals Site in St. Louis, Missouri (CERCLA # MOD079910600 - SSID # 07R8) to the Clean Harbors Subtitle C Facility in Lone Mountain, Oklahoma. Waste shipment is scheduled for June. We want to compare bids from this facility and from the US Ecology facility noted in my prior request.

Wastes to be shipped include:

Twelve (12) 25-cubic yard rolloff containers full of contaminated soil containing PAHs, petroleum hydrocarbons, and dioxins
Twenty (20) drums of investigation derived wastes (IDW) consisting of soil drilling cuttings, well purge water, and used PPE
217 drums containing debris such as miscellaneous bricks, PPE, and sorbent boom

Thanks again!

Mike Davis
On-Scene Coordinator
U.S. EPA Region 7 SUPR/PPSS
901 N. 5th Street
Kansas City, KS 66101
office: (913) 551-7328
cell: (816) 682-5906

▼ Wilkin Shannon---03/02/2012 04:16:27 PM---Hello Michael, the US Ecology, Robstown, TX facility (EPA ID #TXD069452340), is acceptable for CERCLA

From: Wilkin Shannon/R6/USEPA/US
To: MichaelB Davis/R7/USEPA/US@EPA
Date: 03/02/2012 04:16 PM
Subject: Re: Off-Site Rule - Request for Facility Determination

Hello Michael, the US Ecology, Robstown, TX facility (EPA ID #TXD069452340), is acceptable for CERCLA waste. Last inspected 05/12/11. Thanks for the requested information.

Wilkin Ronald Shannon
Hazardous Waste Enforcement Branch
Compliance Assurance & Enforcement Division
U.S. EPA Region 6
(214) 665-2282 - voice
(214) 665-7264 - fax
shannon.wilkin@epa.gov

▼ MichaelB Davis---03/02/2012 03:24:46 PM---Ron, Per our conversation yesterday, I am requesting an off-site rule determination to ship waste fr

From: MichaelB Davis/R7/USEPA/US
To: Wilkin Shannon/R6/USEPA/US@EPA
Date: 03/02/2012 03:24 PM
Subject: Off-Site Rule - Request for Facility Determination

Ron,

Per our conversation yesterday, I am requesting an off-site rule determination to ship waste from the Superior Solvents & Chemicals Site in St. Louis, Missouri (CERCLA # MOD079910600 - SSID # 07R8) to the US Ecology Subtitle C Landfill in Robstown, TX. Waste shipment is scheduled for June. We may request off-site determinations for other facilities in Region 6 regarding this same waste material.

Wastes to be shipped include:

Twelve (12) 25-cubic yard rolloff containers full of contaminated soil containing PAHs, petroleum hydrocarbons, and dioxins
Twenty (20) drums of investigation derived wastes (IDW) consisting of soil drilling cuttings, well purge water, and used PPE
217 drums containing debris such as miscellaneous bricks, PPE, and sorbent boom

Thanks again. Call if you have any questions.

Mike Davis
On-Scene Coordinator
U.S. EPA Region 7 SUPR/PPSS
901 N. 5th Street
Kansas City, KS 66101
office: (913) 551-7328
cell: (816) 682-5906

From: [Oren Gottlieb](#)
To: [Michael Kasnick](#)
Subject: FW: Off-Site Rule - Request for Facility Determination
Date: Friday, April 13, 2012 4:51:53 PM

Oren Gottlieb
Principal Scientist
SLR International Corp

Email: <mailto:ogottlieb@slrconsulting.com>
Mobile: 317-519-9684
Tel: 317-876-3940
597-599 Industrial Drive, Suite 211, Carmel, IN, 46032, United States

-----Original Message-----

From: MichaelB Davis [<mailto:Davis.MichaelB@epamail.epa.gov>]
Sent: Monday, March 05, 2012 1:45 PM
To: Oren Gottlieb
Subject: Fw: Off-Site Rule - Request for Facility Determination

FYI

Mike Davis
On-Scene Coordinator
U.S. EPA Region 7 SUPR/PPSS
901 N. 5th Street
Kansas City, KS 66101
office: (913) 551-7328
cell: (816) 682-5906

----- Forwarded by MichaelB Davis/R7/USEPA/US on 03/05/2012 12:44 PM

From: Wilkin Shannon/R6/USEPA/US
To: MichaelB Davis/R7/USEPA/US@EPA
Date: 03/02/2012 04:16 PM
Subject: Re: Off-Site Rule - Request for Facility Determination

Hello Michael, the US Ecology, Robstown, TX facility (EPA ID #TXD069452340), is acceptable for CERCLA waste. Last inspected 05/12/11. Thanks for the requested information.

Wilkin Ronald Shannon
Hazardous Waste Enforcement Branch
Compliance Assurance & Enforcement Division
U.S. EPA Region 6

(214) 665-2282 - voice
(214) 665-7264 - fax
shannon.wilkin@epa.gov

From: MichaelB Davis/R7/USEPA/US
To: Wilkin Shannon/R6/USEPA/US@EPA
Date: 03/02/2012 03:24 PM
Subject: Off-Site Rule - Request for Facility Determination

Ron,

Per our conversation yesterday, I am requesting an off-site rule determination to ship waste from the Superior Solvents & Chemicals Site in St. Louis, Missouri (CERCLA # MOD079910600 - SSID # 07R8) to the US Ecology Subtitle C Landfill in Robstown, TX. Waste shipment is scheduled for June. We may request off-site determinations for other facilities in Region 6 regarding this same waste material.

Wastes to be shipped include:

Twelve (12) 25-cubic yard rolloff containers full of contaminated soil containing PAHs, petroleum hydrocarbons, and dioxins
Twenty (20) drums of investigation derived wastes (IDW) consisting of soil drilling cuttings, well purge water, and used PPE
217 drums containing debris such as miscellaneous bricks, PPE, and sorbent boom

Thanks again. Call if you have any questions.

Mike Davis
On-Scene Coordinator
U.S. EPA Region 7 SUPR/PPSS
901 N. 5th Street
Kansas City, KS 66101
office: (913) 551-7328
cell: (816) 682-5906

APPENDIX B

SURFACTANT MATERIAL SAFETY DATA SHEET



Page 1 of 4
Procter & Gamble
Fabric and Home Care Division
Ivorydale Technical Center
5299 Spring Grove Avenue
Cincinnati, OH 45217-1087

MATERIAL SAFETY DATA SHEET

MSDS #: LDL 0004
Supersedes: LDL 0003

Issue Date: 04/29/02
Issue Date: 12/03/01

SECTION I - CHEMICAL PRODUCT

Identity: **Liquid Hand Dishwashing Detergents**

Brands:

DAWN (All Variations)

IVORY (All Variations)

JOY (All Variations)

Hazard Rating:

Health:	1	4=EXTREME
Flammability:	0	3=HIGH
Reactivity:	0	2= MODERATE
		1=SLIGHT

Emergency Telephone Number: 24hr P&G Operator:

DAWN - 1-800-725-3296 (DAWN)

IVORY 1-800-253-2753 (IVORY)

JOY - 1-800-436-1569 (JOY)

or call Local Poison Control Center or your physician

SECTION II - COMPOSITION AND INGREDIENTS

Ingredients/Chemical Name: Cleaning and sudsing agents (anionic and nonionic surfactants), dispensing aid (ethyl alcohol), water, stabilizing agents, colorant and perfume.

Dawn and Joy Antibacterial Hand Soaps also contain the antibacterial active Triclosan.

Dawn Hand Care product contains a protease enzyme.

Hazardous Ingredients as defined by OSHA, 29 CFR 1910.1200.

<u>Chemical Name</u>	<u>Common Name</u>	<u>CAS No.</u>	<u>Recommended Limits</u>	<u>Composition Range</u>	<u>LD50/LC50</u>
Ethyl alcohol	Ethanol	64-17-5	ACGIH TLV: 1880 mg/m ³	1-6%	
Subtilisin	Protease	9014-01-1	NIOSH STEL 0.00006 mg/m ³	<0.01%	

SECTION VII - HANDLING AND STORAGE

Precautions To Be Taken in Handling and Storing: No unusual precautions necessary.

Other Precautions: None known

SECTION VIII - EXPOSURE CONTROLS, PERSONAL PROTECTION

Respiratory Protection (Specify Type): None required with normal use.

Ventilation *Local Exhaust:* None required with normal consumer use.

Special: None

Mechanical (General): Normal/general dilution ventilation is acceptable. *Other:* None

Eye Protection: None required with normal consumer use.

Industrial Setting: For splash protection, use chemical goggles. Eye Wash fountain is desirable.

Protective Gloves: None required with normal use.

Industrial Setting: Protective gloves (rubber, neoprene) should be used for prolonged direct contact.

Other Protective Equipment: None required with normal use.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point °F: Not known

Specific Gravity (H₂O=1): ca. 1

Vapor Pressure (mm Hg): N/A

Percent Volatile by Volume (%): ~60-65%

Vapor Density (Air=1): N/A

Evaporation Rate (nBuOAc=1): Unknown

Odor Threshold: N/A

Freezing Point: ~ 30 F

Coefficient of Water/Oil Distribution: N/A

pH (1% solution): ~ 8

Scooped Density: N/A

Solubility in Water: Completely

Appearance and Odor: Purple, Blue, Green, Yellow, Pink or Orange liquids. All products are perfumed.

Reserve Alkalinity: N/A

SECTION X - STABILITY AND REACTIVITY

Possible Hazardous Reactions/Conditions: None known

Conditions to Avoid: None

Materials to Avoid: None

Hazardous Decomposition Products: None known

Other Recommendations: None

SECTION XI - TOXICOLOGICAL INFORMATION

LD50 (rats oral): approx 12 mL/kg

ED50 approx 2.3 mL/kg

Liquid hand dishwashing detergents have a relatively low order of toxicity. They may be irritating, but they are not expected to be corrosive. They are expected to be emetic.

SECTION XII - ECOLOGICAL INFORMATION

All surfactants are readily biodegradable. These products are safe for septic tanks.

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Disposal is to be performed in compliance with Federal, state and local regulations. Household product is safe for disposal down the drain during use or in the trash.
Industrial Setting: Solutions of diluted detergent in the course of use, may be allowed to be flushed down sewer. First check with your local water treatment plant. Recycling is recommended for undiluted scrap product.
 Do not landfill.

SECTION XIV - TRANSPORT INFORMATION

Dawn, Joy and Ivory are non-hazardous under DOT.

SECTION XV - ADDITIONAL REGULATORY INFORMATION

All components are listed on the US TSCA Inventory. No components are affected by Significant New Use Rules (SNURs) under TSCA §5.

No components of Dawn, Ivory or Joy are subject to California Proposition 65 labeling.

All ingredients are CEPA approved for import to Canada by Procter & Gamble only. This product has been classified with Hazard Criteria of the Canadian Control Products Regulation (CPR) and this MSDS contains all information required by the Canadian Products Regulation.

SECTION XVI - OTHER INFORMATION

*N/A. - Not Applicable

*N/K. - Not Known

The submission of this MSDS may be required by law, but this is not an assertion that the substance is hazardous when used in accordance with proper safety practices and normal handling procedures. Data supplied is for use only in connection with occupational safety and health.

The information contained herein has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. The information relates to the specific material designated herein, and does not relate to the use in combination with any other material or any other process. Procter & Gamble assumed no responsibility for injury to the recipient or third persons, for any damage to any property resulting from misuse of the controlled product.

APPENDIX C

PROJECT SCHEDULE

Thompson Chemical
St. Louis, Missouri
Estimated Project Timeline
April 22, 2013

ID	Task Name	Duration	Start	Finish	Quarter		
					Qtr 2	Qtr 3	Qtr 4
1	Administrative Settlement Agreement and Order on Consent for Removal Action (ASAOC) Signed by EPA	1 day	May 15, 2013	May 15, 2013			
2							
3	Task 1 - Administrative/Regulatory/Project Set Up	20 days	May 16, 2013	June 12, 2013			
4	Select Landfill	10 days	May 16, 2013	May 29, 2013			
5	Complete Contracts with TSDf	10 days	May 16, 2013	May 29, 2013			
6	Obtain Temporary Generator Number	20 days	May 16, 2013	June 12, 2013			
7	Other Administrative	20 days	May 16, 2013	June 12, 2013			
8							
9	Task 2 - Rolloff, Berm, IDW/MSD Drum Management	62 days	June 20, 2013	September 13, 2013			
10	Mobilization/Set Up	5 days	June 20, 2013	June 26, 2013			
11	Rolloff, Berm, IDW/MSD Drum Removal and Disposal	55 days	June 27, 2013	September 11, 2013			
12	Demobilization/Break Down	2 days	September 12, 2013	September 13, 2013			
13							
14	Task 3 - Monthly Reporting (30-day Cycle)	130 days	June 8, 2013	December 5, 2013			
15	Task 3 - Monthly Reporting (30-day Cycle) 1	0 days	June 8, 2013	June 8, 2013			
16	Task 3 - Monthly Reporting (30-day Cycle) 2	0 days	July 8, 2013	July 8, 2013			

Contingent on date of ASAOC signing and approval of project documents. Unanticipated circumstances may cause schedule delays.

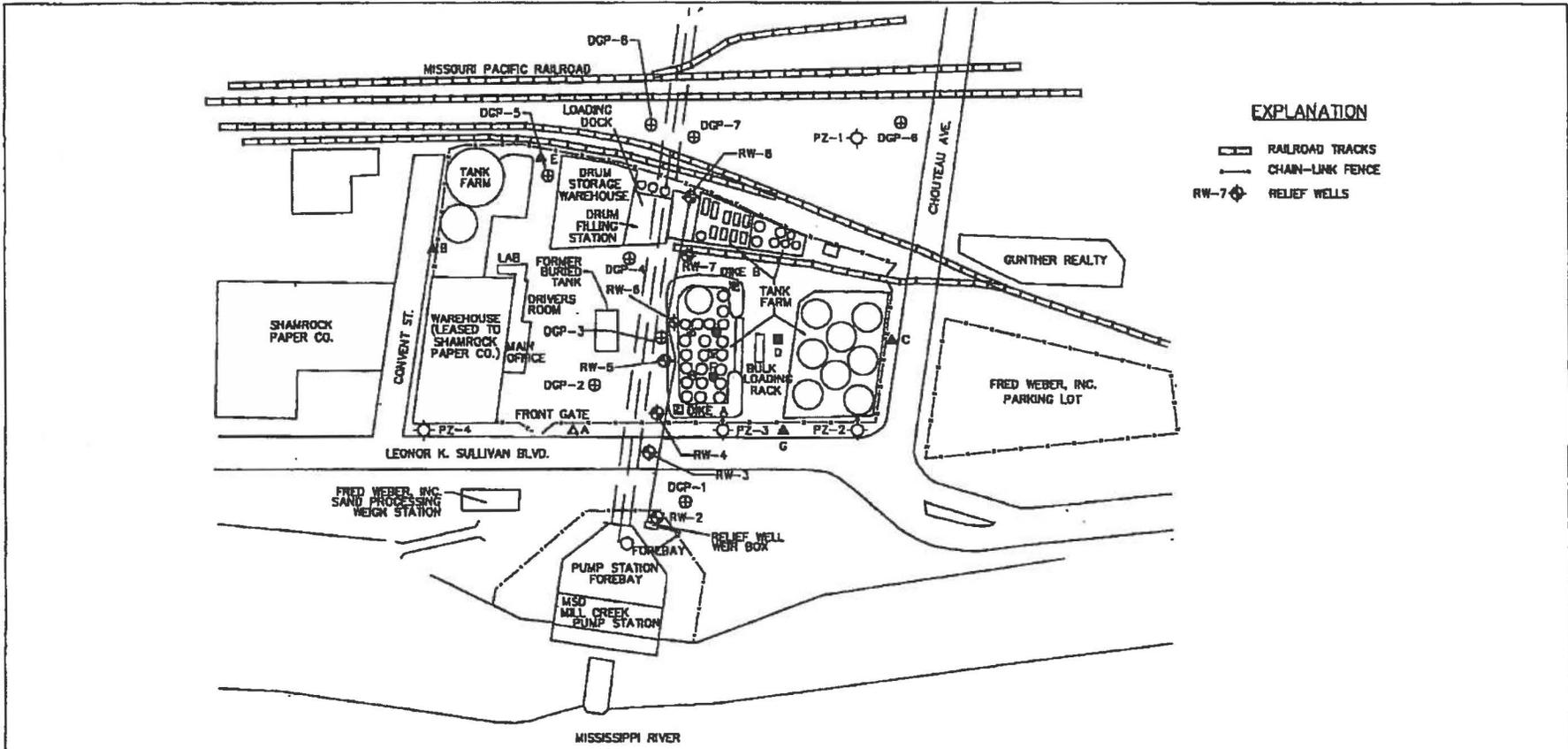
Task		Inactive Summary	
Split		Manual Task	
Milestone		Duration-only	
Summary		Manual Summary Rollup	
Project Summary		Manual Summary	
External Tasks		Start-only	
External Milestone		Finish-only	
Inactive Task		Deadline	
Inactive Milestone		Progress	

**Thompson Chemical
St. Louis, Missouri
Estimated Project Timeline
April 22, 2013**

ID	Task Name	Duration	Start	Finish			
					Qtr 2	Qtr 3	Qtr 4
17	Task 3 - Monthly Reporting (30-day Cycle) 3	0 days	August 8, 2013	August 8, 2013		◆ 8/8	
18	Task 3 - Monthly Reporting (30-day Cycle) 4	0 days	September 8, 2013	September 8, 2013		◆ 9/8	
19	Task 3 - Monthly Reporting (30-day Cycle) 5	0 days	October 8, 2013	October 8, 2013		◆ 10/8	
20	Task 3 - Monthly Reporting (30-day Cycle) 6	0 days	November 8, 2013	November 8, 2013		◆ 11/8	
21	Task 3 - Monthly Reporting (30-day Cycle) 7	0 days	December 8, 2013	December 8, 2013		◆ 12/8	
22							
23	Task 4 - Submit Final Report to EPA	0 days	November 20, 2013	November 20, 2013		◆ 11/20	
24							
25							
26							
27	and document						

<p>Contingent on date of ASAOC signing and approval of project documents. Unanticipated circumstances may cause schedule delays.</p>	Task		Inactive Summary	
	Split		Manual Task	
	Milestone	◆	Duration-only	
	Summary		Manual Summary Rollup	
	Project Summary		Manual Summary	
	External Tasks		Start-only	⌈
	External Milestone	◆	Finish-only	⌋
	Inactive Task		Deadline	↓
Inactive Milestone	◆	Progress		

APPENDIX C



EXPLANATION

- ▬ RAILROAD TRACKS
- CHAIN-LINK FENCE
- ⊕ RELIEF WELLS

SCALE: 1" = 100'

<p align="center">SECOR International Incorporated 3605 S. Culpepper Circle, Suite 0 Springfield, Missouri 65807</p>	Drawn By: SES Dep. Date: 5-3-01	Checked By: OG Rev. Date: 11/16/01	PROJECT NO.: 022.11265.500	FIGURE 2
	Client: Thompson Chemical		Thompson Chemical St. Louis, Missouri	Title: SITE MAP

APPENDIX B



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 7

11201 Renner Boulevard
Lenexa, Kansas 66219

APR 17 2013

ENFORCEMENT ACTION MEMORANDUM AMENDMENT #1

SUBJECT: Request for Amendment to Removal Action at the Thompson Chemicals Inc., Site
St. Louis, Missouri

FROM: Mike B. Davis, On-Scene Coordinator
Planning and Preparedness South Section

Mary P. Peterson for

THRU: Mary Peterson, Chief
Planning and Preparedness South Section

Mary P. Peterson

TO: Cecilia Tapia, Director
Superfund Division

SITE ID#: 07R8, OU1, BB003

I. PURPOSE

The purpose of this Action Memorandum Amendment is to request and document approval of a modification to a previously approved Action Memorandum dated July 13, 2006, for the Thompson Chemicals Inc., site (Site) due to a change in the scope and category of the response. This Amendment modifies the original Action Memo by addressing only the removal and off-site disposal of 12 roll-off boxes containing contaminated soil and debris, 238 55-gallon drums containing investigation-derived waste (IDW), and off-site disposal of a soil berm associated with a former above-ground storage tank (AST) farm. The 2006 Action Memorandum is attached.

The Site is an active solvent transfer station operated by Superior Oil Company, located at 60 Chouteau Avenue, St. Louis, Missouri. The Site is contaminated with dioxins including 2,3,7,8-tetrachlorinated dibenzo-p-dioxin, polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs). An Engineering Evaluation and Cost Analysis (EE/CA) was completed by a group of Potentially Responsible Parties (PRPs) leading to approval of the 2006 Action Memorandum. The removal activities prescribed for the Site in the 2006 Action Memorandum consisted of: (1) removal and off-site disposal of contaminated soil and debris currently stored onsite in 12 20-cubic yard roll-off boxes; (2) removal and off-site disposal of dioxin contaminated soils; (3) capping of portions of the site; (4) implementation of institutional controls; and (5) groundwater monitoring for a period of two years.

On a national level, the U.S. Environmental Protection Agency initiated a reassessment of cleanup levels for dioxins. The reassessment affects certain response actions at this Site, including response actions involving soil excavation and groundwater. However, disposal of the containerized,



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contaminated soil, debris, and berm soil should not be delayed further. The containers have been in storage on the Site since 1987. Due to the passage of time, the condition of the roll-offs has deteriorated to an extent that could potentially jeopardize the integrity of the containers and their ability to secure the contents. This Action Memorandum Amendment modifies the original Action Memorandum by addressing only the removal and off-site disposal of the 12 roll-off boxes and contents, the 238 IDW-filled drums and off-site disposal of berm soils. This Amendment also modifies the 2006 Action Memorandum by changing the response category for these specific actions from non-time-critical to time-critical.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID#:	MOD079910600
Category of Removal:	Time Critical
Nationally Significant/Precedent Setting:	No

A. Site Description

1. Removal site evaluation

The Site is an active solvent transfer station. Past activities at the Site have resulted in a release of hazardous substances into the environment, including dioxins, PAHs and VOCs. Past removal activities at the site, namely the excavation of a former underground storage tank and surrounding soils, have resulted in the on-site storage of 12 roll-off boxes which contain an estimated 250 cubic yards of soils and debris, 238 55-gallon drums of IDW, and a soil berm associated with a former above-ground storage tank (AST) farm likely contaminated with the aforementioned hazardous substances.

There have been a number of previous investigations at the site. Refer to Attachment 1, the original Action Memorandum for the Site, for a description of the previous investigations and a summary of the pertinent findings. On December 8, 2011, additional investigations were performed to determine whether the waste materials contained in the 12 roll-off containers and 238 drums were characteristically hazardous. None of the chemicals of concern were detected at concentrations exceeding the Toxicity Characteristic Leaching Procedure (TCLP) criteria promulgated in 40 CFR § 261.24. A December 8, 2011, Waste Disposal Profiling Investigation Report documenting the sampling activities and methods, analytical results, and findings and conclusions was submitted to the EPA and the Missouri Department of Natural Resources (MDNR). The EPA reviewed the Waste Disposal Profiling Investigation Report in conjunction with MDNR and issued a joint approval letter to the Respondents dated January 10, 2012.

In September 2012, sampling investigations were performed to determine whether the berm soil is characteristically hazardous. None of the chemicals of concern were detected at concentrations exceeding the TCLP criteria promulgated in 40 CFR § 261.24. A November 27, 2012, Soil Berm Waste Profiling Investigation Report documenting the sampling activities and methods, analytical results, and findings and conclusions was submitted to the EPA and MDNR. The EPA reviewed the Report in conjunction with MDNR and issued an approval letter to the Respondents dated December 17, 2012.

2. Physical location and site characteristics

See the previously approved Action Memorandum dated July 13, 2006.

3. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

See the previously approved Action Memorandum dated July 13, 2006.

4. NPL status

The Site is not currently on the NPL, nor is it proposed for listing on the NPL. See the previously approved Action Memorandum dated July 13, 2006.

5. Maps, pictures, and other graphic representations

See the previously approved Action Memorandum dated July 13, 2006, for a map which generally describes the Site.

B. Other Actions to Date

1. Previous actions

See the previously approved Action Memorandum dated July 13, 2006, for a description of the previous actions conducted at this Site. On December 8, 2011, additional investigations were performed to determine whether the waste materials contained in the 12 roll-off boxes and 238 drums were characteristically hazardous. None of the chemicals of concern were detected at concentrations exceeding the TCLP criteria promulgated in 40 CFR § 261.24. In September 2012, sampling investigations were performed to determine whether the berm soil was characteristically hazardous. None of the chemicals of concern were detected at concentrations exceeding the TCLP criteria promulgated in 40 CFR § 261.24.

2. Current actions

The only current actions are the continued storage of the 12 roll-off boxes, 238 drums and berm soil.

C. State and Local Authorities' Roles

1. State and local action to date

MDNR has provided assistance as a support agency, and this assistance is expected to continue for the duration of the project.

2. Potential for continued State/local action

MDNR intends to continue to provide assistance during this response action as a support agency.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415(b) of the National Contingency Plan (NCP), 40 CFR § 300.415, provides that the EPA may conduct a removal action when it determines that there is a threat to human health or welfare or the environment based on one or more of the eight factors listed in Section 300.415(b)(2). The factors that justify a removal action at the Site are outlined as follows:

300.415(b)(2)(i) – Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants.

As part of the EE/CA, a streamlined risk evaluation was conducted which evaluated all reasonably anticipated potential exposure pathways to contaminants of concern at the Site and concluded that the magnitude and extent of contamination represented an unacceptable risk warranting a removal action. Refer to Attachment 1, the original Action Memorandum for the Site, for a detailed description of potential exposures at the Site.

300.415(b)(2)(iv) – High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

Based on analytical data from the December 8, 2011, Waste Disposal Profiling Investigation Report, the material in the rolloff boxes contains hazardous substances including dioxins and a number of semi-volatile PAHs at concentrations greater than appropriate risk-based standards. Total dioxin and furan concentrations ranged from 10.3 to 108.4 µg/kg toxic equivalents (TEQs) in the roll-off boxes and 0.003 to 78.1 µg/kg in the IDW drums. Total dioxin concentrations ranged from 23.4 to 541 µg/kg TEQs in the berm soil. None of the chemicals of concern were detected at concentrations exceeding the TCLP criteria promulgated in 40 CFR § 261.24. Due to the passage of time, the condition of the roll-off boxes has deteriorated and could potentially jeopardize their ability to secure their contents. If released into the environment, the contaminated waste materials may migrate via airborne dusts, surface runoff to nearby storm water conduits and surface water, and via worker activity transporting soils/dusts onto otherwise unimpacted areas of the Site, vehicles, facility buildings and residences.

300.415(b)(2)(v) – Weather conditions that may cause hazardous substances, pollutants or contaminants to migrate.

Exposure to precipitation and weather conditions will worsen corrosion of the roll-off boxes and exacerbate the threat of release of hazardous substances to the environment from the roll-off boxes and the berm soil.

300.415(b)(2)(vii) -- The availability of other appropriate federal or state response mechanisms to respond to the release.

The facility may be subject to the corrective action provisions in section 3008(h) of the Resource Conservation and Recovery Act (RCRA). However, response authority was administratively referred to the Superfund program, and there are currently no planned RCRA enforcement actions to conduct the response actions necessary at this Site. There are no other state or federal authorities who are able to respond to the release of hazardous substances at the Site at this time.

300.415(b)(2)(viii) -- Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

See the previously approved Action Memorandum dated July 13, 2006.

IV. ENDANGERMENT DETERMINATION

See the previously approved Action Memorandum dated July 13, 2006.

V. PROPOSED ACTIONS AND ESTIMATED COST

A. Proposed Actions

1. Proposed action description

ROLL-OFF BOXES

Of the three options considered in the EE/CA to manage the roll-off boxes, the “Offsite Thermal Treatment or Land Disposal” option was considered the only feasible option given the Site conditions, cost of the remedy, and the residual risk resulting from the remedy.

In a January 2004 memorandum, and reaffirmed in a May 2010 letter and a December 2011 email, MDNR provided to the EPA a regulatory analysis stating that waste contained in the roll-off boxes may be disposed of at a Subtitle C hazardous waste landfill. It was determined by the state of Missouri that land disposal is both permissible and appropriate at a Subtitle C hazardous waste landfill. Minutes from a June 2, 2011, Regional Decision Team Meeting are contained in the administrative record for this Site and provide a more detailed analysis of disposal considerations for the waste at the Site. Ultimately, land disposal in an appropriately permitted Subtitle C hazardous waste landfill was determined to be acceptable for the material in the roll-offs based on the existing Administrative Record for this Site, which includes the data contained in the December 8, 2011, Waste Disposal Profiling Investigation Report. The PRPs received approval from the EPA Region 6 Off-Site Rule Coordinator, and the Director of the Land Protection Division at the Oklahoma Department of Environmental Quality, for land disposal at the Clean Harbors Lone Mountain Subtitle C Hazardous Waste Landfill located in Waynoka, Oklahoma.

IDW DRUMS

All drums stored on-site containing contaminated soils, water, personal protective equipment, and other investigation-derived waste will be transported for disposal in an appropriately permitted Subtitle C hazardous waste landfill.

BERM SOIL

A tank farm was formerly located in the central portion of the Site. All that remains of the tank farm is an earthen berm that was used as secondary containment for the tanks. This earthen berm contains approximately 400 cubic yards (CY) of soil contaminated with dioxins and other chemicals of concern. Land disposal in an appropriately permitted Subtitle C hazardous waste landfill was determined to be acceptable for the berm soil based upon the Administrative Record for this Site,

which includes data contained in the November 27, 2012, Berm Soil Waste Profiling Investigation Report. Consistent with the material handling and disposal requirements applicable to the roll-off boxes, the berm soil will be transported for disposal at an appropriately permitted Subtitle C hazardous waste landfill.

2. Contribution to remedial performance

The enforcement-lead actions proposed in this Amendment should not impede any future remedial plans or other response. The Site is currently not on the NPL nor is it proposed for listing.

3. Engineering evaluation/cost analysis (EE/CA)

The PRP's EE/CA and the EPA's EE/CA Approval Memorandum are part of the Administrative Record for the Site. Actions outlined in this Amendment come from and are supported by the EE/CA.

4. Applicable or relevant and appropriate requirements (ARARs)

Section 300.415(j) of the NCP provides that removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental facility siting laws. The following specific ARARs have been identified for this action:

Federal ARARs

- Department of Transportation (DOT) regulations at 49 CFR parts 107 and 171-177 and DOT hazardous material transportation regulations may be relevant and appropriate for transportation of the contaminated soils.
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, Off-Site Rule promulgated pursuant to Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and formally entitled "Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Off-Site Response Action: Final Rule," 58 Fed. Reg. 49200 (Sept. 22, 1993), codified at 40 CFR § 300.440, will be applicable for wastes disposed of off-site.
- Subtitle C of RCRA, 42 U.S.C. Section 6901, et seq.; 40 CFR part 260, et seq.; and implementing federal and state regulations for contaminated soils will be applicable.
- Management of waste within an Area of Contamination (AOC) will be conducted in conformance with applicable policy and guidance. See 53 FR 51444 for a detailed discussion in the proposed NCP preamble; and 55 FR 8758-8760, March 8, 1990, for the final NCP preamble discussion. See also the March 13, 1996, EPA memorandum "Use of the Area of Contamination Concept During RCRA Cleanups," and most recently the "Hazardous Remediation Waste Management Requirements (HWIR media)" in Federal Register / Vol. 63, No. 229 / Monday, November 30, 1998.

State ARARs

- See the previously approved Action Memorandum dated July 13, 2006, for a complete listing of ARARs identified by the state of Missouri. For this action, 10 CSR 25-4.261(2)(d)(3) is applicable as it relates to Missouri hazardous waste listings and management of dioxin-contaminated wastes (MH02).

5. Project schedule

Response activities are anticipated to begin within 90 days of the signing of this Action Memorandum. It is anticipated that the project will require approximately 90-120 days to complete.

B. Estimated Costs

The PRPs will implement and complete the work described in this Amendment. The costs associated with the removal action are discussed in the attached confidential enforcement addendum.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

The proposed removal actions at this Site should be taken. Should these actions be delayed or not taken, the threat to public health or welfare or the environment will continue. The attached original Action Memorandum noted that the potential for deterioration of the roll-off boxes creates a potential for significant exposures. Due to the passage of time, the condition of the roll-off boxes has deteriorated and could potentially jeopardize their integrity. Similarly, long-term storage of contaminated waste materials on-site in drums and covered berms is not prudent and could jeopardize the integrity of these storage units resulting in substantial releases to the environment. Therefore, despite the potential for additional delay in the resolution of other actions called for in the original Action Memorandum, disposal of the roll-off boxes, drums and berm soil should be conducted as soon as practicable.

VII. OUTSTANDING POLICY ISSUES

It has not been determined whether the issue of land disposal of dioxin-contaminated material, based largely on the state's determination of appropriate disposal, is considered an issue of national significance. Subtitle C hazardous waste landfills have been identified which are appropriately permitted to accept dioxin-contaminated material and have received CERCLA off-site approval for this waste. Nonetheless, the recent developments in dioxin cleanup policies and national attention to dioxin-contaminated sites may heighten the national significance of land disposal of dioxin-contaminated materials.

VIII. ENFORCEMENT

See the attached Confidential Enforcement Addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for addressing the hazardous substances, pollutants or contaminants present at the Site. The removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site, which includes an approved EE/CA.

Conditions at the Site meet NCP Section 300.415(b) criteria for a removal action, and I recommend your approval of the proposed, modified removal action. Response costs, including oversight costs, will be paid by the PRPs.

Approved:



Cecilia Tapia, Director
Superfund Division

4/17/13

Date

Attachments

Attachment 1



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

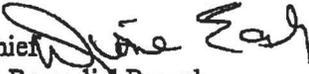
REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

JUL 13 2006

ACTION MEMORANDUM/Enforcement

SUBJECT: Request for a Removal Action at the Superior Solvents and Chemicals, Inc. Site
St. Louis, Missouri

FROM: 
Steven E. Kinser, Remedial Project Manager
Missouri/Kansas Remedial Branch

THRU: Diane Easley, Chief 
Missouri/Kansas Remedial Branch

TO: Cecilia Tapia, Director
Superfund Division

Site ID#:	R8
Category of Removal:	Nontime-Critical
CERCLIS ID #	MOD079910600
Nationally Significant/Precedent Setting:	No

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of a nontime-critical removal action to address contaminated soils and stored debris at the Superior Solvents and Chemicals, Inc. Site (the Site), located at 60 Chouteau Avenue in St. Louis, Missouri. The Site, a current active solvent-transfer station operated by Superior Oil Company, is contaminated with dioxin, polyaromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs). On April 4, 1996, a group of potentially responsible parties (PRPs), which included previous owners and operators, entered into an Administrative Order on Consent (AOC) under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. §6901 *et seq.*, for the purpose of conducting an Engineering Evaluation/Cost Analysis (EE/CA) that would evaluate alternative removal actions to address Site contamination. It is anticipated that these same parties will implement the approved removal action under another AOC with the Environmental Protection Agency (EPA) oversight. The removal will consist of: (1) removal and offsite disposal of contaminated debris currently stored

onsite in thirteen twenty-cubic yard rolloff boxes, (2) removal and offsite treatment and/or disposal of dioxin-contaminated soils, (3) the capping of the remainder of the unpaved portion of the Site, (4) the implementation of institutional controls to ensure the continued effectiveness of the removal action, and (5) the monitoring of the Site groundwater for a period of two years. The estimated cost of the removal action as presented in the EE/CA is \$2,810,000 which does not include EPA's oversight costs. The time to complete this action was estimated in the EE/CA to be one to two years, and the project is expected to begin in August 2006 following completion of the negotiations on an AOC. All of these actions are identified in the EE/CA.

Since this is a dioxin removal site, it will be reviewed for nationally significant issues. Consultation with Headquarters concerning the proposed action was completed on June 6, 2006. No additional consultation was requested.

II. SITE CONDITIONS AND BACKGROUND

The Site, a.k.a. Thompson Chemical Site, CERCLIS ID#: MO079910600, is a nontime-critical removal.

A. Site Description

1. Removal Site Evaluation

The Site is a currently active solvent-transfer station. Past activities at the Site have resulted in the release of hazardous substances, including dioxin, PAHs, and VOCs into the Site's soils and soils between the property fence and the street adjacent to the property. A wooden conduit discovered during a 1987 tank removal action may be a source of contamination at the Site. Past removal activities have resulted in the onsite storage of thirteen rolloff boxes which contain an estimated 225 tons of dioxin-contaminated material.

Previous investigations are summarized as follows:

Roy F. Weston, Inc., 1984

In 1984, the EPA contracted with Roy F. Weston, Inc. (Weston), a Technical Assistance Team contractor, to perform a Preliminary Assessment (PA) at the Site. The assessment was prompted by information collected by EPA that indicated Agent Orange had been produced at the Site. Weston personnel visited the Site on June 16, 1984, conducted a visual inspection, and collected samples. The PA reached the following conclusions:

- The Site was a Tier II site under the National Dioxin Strategy, designated as such because of the historical use of herbicide 2,4,5-T in manufacturing processes at the Site.
- The potentially affected area at the Site was about one acre, and the main route of exposure at the Site was determined to be through ingestion of dust from unpaved contaminated areas.
- The community received its drinking water from public utilities and did not use groundwater. The groundwater in the area is not used as a potable water source by any other entity.

A total of 24 soil samples were collected and submitted for analysis. Sample results indicated the presence of dioxin above 1 part per billion (ppb) at 16 locations across the Site. The highest levels of dioxin were in soil samples collected from around the central tank farm and from the earthen berm surrounding the tank farm.

Ecology & Environment, 1984

The EPA contracted with Ecology & Environment, a Field Investigation Team contractor, to conduct a site evaluation which included soil, runoff, dust, and water sampling. Ecology & Environment personnel performed site activities from October 22 to 27, 1984. Ecology & Environment identified several areas at the Site including an underground storage tank (UST) located in the central portion of the Site which had been used for the storage of process material during the historical operation of the facility. The Ecology & Environment sampling effort included the following:

- Seven soil samples were collected while drilling and sampling in the area of the UST. Samples were collected from two areas adjacent to the earthen berm around the tank farm.
- Twelve surface soil samples were collected by compositing five aliquots to form each surface soil sample.
- One sample was collected from the contents of the partially excavated buried tank.
- Four soil samples were collected from the excavation adjacent to the tank.
- Three soil samples were collected from a trench that was installed to repair a water line damaged during drilling.

- One sample was collected from a storm sewer pipe located in the fill area.
- Three composite sediment samples composed of five aliquots were collected from sediment washed onto Leonor K. Sullivan Boulevard from the damaged water line.
- One dust sample was collected from the Site's shipping and receiving building.
- One sample consisting of five aliquots was collected from the ground surface at the Mill Creek Pumping Station property.

Sample analyses in surface soils indicated levels of dioxin ranging from 1 to 160 ppb, with the highest levels in samples collected from the earthen berm around the central tank farm area. Historical information indicates the unconsolidated material used to construct this berm may have been derived from the former Thompson Chemical operations area. The Ecology & Environment and the Weston sampling efforts documented the presence of VOCs in the soils at the Site, including 1, 1, 1-trichloroethane (310 ppb), methylene chloride (380 ppb), tetrachloroethene (11.6 ppb), and the presence of PAHs in the soils at levels up to 2,831 parts per million (ppm).

Dioxin was not detected in the sample from the Mill Creek Pumping Station property (the detection limit was 1 ppb).

Woodward Clyde Consultants - 1987

The EPA contracted with Woodward Clyde Consultants (WCC) to perform additional sampling at the Site because of the reported presence of suspected impacts in the MSD Trunkline underlying the Site. The WCC personnel collected samples at the Site in February and August 1987 from eight locations along the sewer walls at heights between 5 and 9.5 feet. The WCC documented the presence of dioxin in the sewer ceiling and wall sediments at levels up to 30 ppb. The presence of PAHs at levels greater than 100,000 ppb within the sewer was also documented.

Jacobs Engineering Group - 1988/1989

The EPA contracted with Jacobs Engineering Group (Jacobs) to perform additional sampling in the MSD Trunkline underlying the Site in November 1988. During an entry into the sewer, Jacobs's personnel observed visual evidence of contamination on the sewer walls beneath the Site. Jacobs's personnel collected samples from two areas of the wall at approximately five feet high and submitted the samples for analyses of VOCs, semi-volatile

organic compounds (SVOCs), and dioxin. Sample results indicated the presence of dioxin at 30 ppb and VOCs at levels greater than 25,000 ppb.

In July and August of 1989, samples of river sediments were collected by Jacobs at the Mill Creek Sewer outfall. Levels of toluene at 1,500 ppb and PAHs as high as 35,000 ppb were detected upgradient and downgradient of the outfall. Dioxin was non-detect in all the samples collected in July and August 1989.

Black & Veatch - 1997

Black & Veatch performed the first phase of the EE/CA site investigation under the AOC on behalf of the PRPs during the months of June and July 1997 to evaluate the extent of dioxin and other chemical contamination across the Site. Field activities completed during the site investigation included geoprobe borings, installation of temporary piezometers, and collection of soil, soil gas, and groundwater samples. Soil samples were analyzed for polychlorinated dibenzofurans and dioxins, VOCs, SVOCs, PAHs, and the herbicides 2,4-D and 2,4,5-T. Soil gas samples were analyzed for VOCs with the high sample having 3,670,000 ppb total VOCs. Groundwater samples were analyzed for polychlorinated dibenzofurans and dioxins, VOCs, SVOCs, PAHs, and the herbicides 2,4-D and 2,4,5-T. The results for polychlorinated dibenzofurans had a high value of 1.5 ppb, and the high value for dioxins was 14.6 ppb. The high value for total VOCs found was 9.1 ppb, and the high value for total SVOCs was 282 ppb. The results for the PAHs showed a high value of 1,771 ppm. For the herbicide 2,4-D, a high of 160 ppb was detected, and for the herbicide 2,4,5-T, a high of 0.22 ppb was detected onsite.

SECOR - 2004

SECOR completed the EE/CA on behalf of the PRPs with field activity taking place in 2000 and 2001. The document was completed and accepted in 2004. The scope of the SECOR effort was to complete a comprehensive EE/CA for the Site by filling in the data gaps left by previous efforts. The AOC that covered the activity did not require investigation of the area groundwater. Therefore, that area was not addressed by the EE/CA. A groundwater investigation is anticipated in future actions. Additionally, the EE/CA did not address the potential threat posed by the wooden conduit found in the 1987 tank removal. This threat will also be addressed in future actions.

Based upon the EE/CA, the major components of the removal will include addressing the rolloff boxes stored onsite, the soil berm contaminated with dioxin and other contaminants, and the soils contaminated with dioxin and herbicides. All unpaved areas within the property boundaries will be paved.

2. Physical Location

The property is located in Section 26, Township 45N, Range 7E. The approximate geographic coordinates are 38° 36' 50" north latitude and 90° 11' 20" west longitude.

The Site is located 300 feet west of the Mississippi River at 60 Chouteau Avenue, St. Louis, Missouri. The Site is approximately 2.5 acres, bounded by Chouteau Avenue on the north, Leonor K. Sullivan Boulevard on the east, Convent Street on the south, and the Missouri Pacific Railroad line on the west. The area is an industrial area, and no residents are adjacent to the Site or in the immediate vicinity. The Metropolitan Sewer District's Mill Creek facility is directly across the street to the east of the Site.

3. Site Characteristics

The Site is located in an urban, industrialized area. The area surrounding the Site is zoned for "any use" and has been used for industrialized purposes since the early 1800s. Historical operations at the Site have included chemical processing, wood treating, and bulk oil and chemical storage.

Land use in the area consists of manufacturing and warehouse facilities. A major manufacturing facility known as Nooter Boiler Company (Nooter) occupies a 40-acre parcel of land adjacent to the southwest and west boundaries of the Site. Nooter manufactures boilers and associated hardware and employs approximately 750 personnel. A parking lot owned by Fred Weber, Inc. (FWI), a local construction materials supplier, is directly north of the Site. FWI also operates a sand processing facility on the Mississippi River to the southeast of the Site. The GS Robbins facility, a solvent distributor, is northwest of the Site.

A solvent distributor, a former industrial facility, and a paint manufacturer are upgradient of the Site. There are no downgradient potable wells.

The majority of the Site is currently owned and operated by the Superior Oil and Chemicals Company. The remainder of the Site is owned by Union Pacific Railroad. The facility is a solvent distribution center. Bulk solvents are off loaded and stored onsite for future transfer to and delivery via tanker truck.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant, or Contaminant

Hazardous substances, as defined by CERCLA Section 101(14), have been detected in sediments and soils at the Site and include: (1) a variety of volatile organic substances, including tetrachloroethane, trichloroethene, and xylenes; (2) a variety of semi-volatile organic substances including, anthracene, benzo (a) pyrene, and pyrene; and (3) a number of pesticides, dioxins, and chlorinated dibenzofurans. (See Table 1 to this Action Memorandum for a complete listing of the hazardous substances that have been detected in the soils and sediments at the Site.) The primary concern is the presence of dioxin at levels greater than 10 ppb inside the facility fence and greater than 1 ppb outside the facility fence. The presence of dioxin at these levels represents a persistent and significant threat to the health of any individual who may come into contact with the contaminated soils. Other contaminants consisting of VOCs, SVOCs, pesticides, and PAHs have been found onsite at levels creating a risk to human health and the environment.

Prior actions at the Site include: (1) the processing of coal tar by the Barrett Company as early as 1909; (2) wood treating by Associated Sales and Supply Company and Associated Wood Preservers, Inc., from about 1932 until 1963, along with the storage of oil and chemicals by various companies including Monsanto; and (3) the production of herbicides 2,4,5-T, 2,4-D, and Agent Orange when Thompson Chemical operated on a portion of the Site from 1948 until 1978. The prior operations have resulted in a release of hazardous substances, leaving Site soils contaminated as described in the paragraphs above. The residual soils, personal protective equipment, and miscellaneous investigative wastes from previous removals have remained onsite in rolloff boxes for more than 15 years.

Past Site activity has resulted in the contamination of both on and offsite soils. Products, by-products, and wastes from the previous and current tenants have resulted in soil contamination which could now or in the future represent exposure threats to onsite personnel and offsite passersby. The levels of dioxin are of particular concern as they exceed those prescribed in the "Eastern Missouri Dioxin Protocol." Section 7 of the EE/CA identifies the specific risks associated with the various contaminants.

5. National Priorities List (NPL) Status

The Site is not currently on the NPL. The Agency has not completed a Hazardous Ranking System package and is not considering proposing the Site to the NPL. The PRPs have been cooperative to date and are expected to implement the selected removal action under an AOC. The additional administrative work required for Hazardous Rank Scoring on the Site is considered to be unnecessary at this time to ensure the cleanup of the Site.

6. Maps, Pictures, and Other Graphic Representations

Attached to this Action Memorandum is a map which generally describes the Site (Appendix 1). Maps representing the Site location, Site features, sample locations, and extent of contamination can be found in the EE/CA, which is included as a part of the Administrative Record for this Site.

B. Other Actions to Date

1. Previous Actions

Tank Removal Action/Rolloff Boxes - 1987

In 1987, Superior retained Ryckman's Emergency Action & Consulting Team (REACT) to remove an UST containing a creosote material that had been noted in the 1984 Ecology & Environment site evaluation. The removal was conducted in accordance with a 1987 work plan titled, *Tank Contents Removal Plan*, pursuant to an AOC, Docket No. 88-S-0005, dated December 8, 1987. REACT removed the tank, contents, and associated impacted soils in December 1987 and contained the materials onsite in thirteen 20-cubic yard rolloff boxes. Samples were collected from the bottom surface of the excavation from a depth of approximately eight to nine feet below ground surface. Analytical results indicated the presence of dioxin in the four samples taken at levels of 4.9 to 7.2 ppb. The rolloff boxes remain staged at the Site. The UST removal is detailed in a report titled, *Remedial Action Program for Tank Removal and Containerization of Contaminated Sludges and Soils at Superior Solvent Company*, prepared by REACT and dated March 3, 1988. It is in the aforementioned report that details concerning the contamination in the wooden conduit are discussed. The PRPs completed the work and no cost estimate is available from them.

The rolloff boxes are entirely enclosed with steel lids and tarps placed on the boxes to keep off rain and to prevent standing water from rusting the boxes during storage. Information from the Site employees who were present during the removal action indicates the materials were segregated into separate rolloff boxes based on visual classification.

Soils contained in the rolloff boxes were visually inspected and sampled for waste characterization and disposal purposes. A minimum of one composite sample from each rolloff box was collected with additional samples collected as needed. These samples have not been analyzed, but are currently stored in a stable, room-temperature environment. The stored samples will be representative of the contents of the rolloff boxes. Given the desiccated nature

of the contents of the rolloff boxes due to unprotected exposure to the summer heat since being placed onsite in 1987, no VOCs or SVOCs should remain. The samples that have been sealed and maintained at room temperature are expected to be representative of the wastes in the rolloff boxes and sufficient to characterize the rolloff boxes for waste disposal purposes.

MSD Trunkline Rehabilitation - 1991

In 1988, the MSD Trunkline entered into a consent agreement with the Missouri Department of Natural Resources (MDNR), under the MDNR's authority, to perform structural

rehabilitation work in the Mill Creek sewer system as a part of a system-wide improvement to meet current standards. Superior retained REACT to perform engineering services necessary to rehabilitate the portion of the MSD Trunkline underlying the Site. REACT evaluated the sewer and designed a remedy that included pre-cleaning of the interior of the sewer, the installation of a latex liner, and the installation of a reinforced shotcrete liner. The completion of the rehabilitation activities is documented in the October 4, 1991, Sewer Rehabilitation Project Completion form prepared by REACT and submitted to MSD.

In 1995, a sheen was observed on the surface of the water coming from the MSD Trunkline. The MSD Trunkline was entered by representatives of the PRPs, and the source of the sheen was determined to be a two-foot by three-foot lateral located on the north wall about 277 feet west of the forebay of the Mill Creek Pump Station. Historical evidence indicates that this lateral was constructed during the late 1800s. The lateral was abandoned by the PRPs in July 1996 by gravity feeding grout into the lateral and plugged with a concrete patch at the lateral's entrance to the MSD Trunkline. This was an independent action done without EPA involvement or oversight. Following the abandonment of the lateral, hydrocarbon fluids were observed by employees of Superior Solvents in the forebay of the Mill Creek Pump Station. In August 1996, MSD Trunkline entered the sewer and observed potentially contaminated liquids infiltrating from the concrete patch placed to seal the lateral and groundwater infiltrating into the sewer through several vertical cracks in the sewer beneath the Site.

Sampling conducted in 1996 by New Horizons Environmental Consultants on behalf of the PRPs detected the presence of constituents including 2,4-D, PAHs, and phenolic compounds contained in water entering into the MSD Trunkline from the north lateral patch and the south lateral. Discharge into the MSD Trunkline is currently treated by the PRPs using sorbent booms at the entrance of the forebay and at the Mill Creek effluent point. The EPA has received reports of this activity, but it is a follow up to the sewer rehabilitation and has been done without EPA oversight. The original estimated cost for the sewer rehabilitation was one million dollars. No report of actual cost has been received.

2. Current Actions

The only current action at the Site is the continued storage of the thirteen rolloff boxes, which contain residual soils and waste from the previous tank removal conducted in 1988 and personal protective equipment and investigation-derived waste from the Site. The rolloff boxes have been onsite for more than 15 years and have been maintained by the PRPs. There has been no report of the estimated cost of this maintenance.

C. State and Local Authorities' Rolls

When the Site was initially identified through the "Tier II Dioxin Study", the MDNR indicated that it was insufficiently staffed to provide oversight assistance for this Site. Later as the anticipated final removal for the Site was being evaluated by the PRPs via the development of the EE/CA, MDNR was able to provide assistance as a support agency throughout the EE/CA developmental process. This assistance is expected to continue for the duration of the project.

III. **THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

The National Contingency Plan (NCP), at 40 C.F.R. Section 300.415(b), provides that the EPA may conduct a removal action when it determines that there is a threat to human health, or welfare, or the environment based on one or more of the eight factors listed in Section 300.415(b)(2). The factors which justify a removal action at the Site are outlined below.

A. Threats to Public Health or Welfare

1. Section 300.415(b)(2)(i) - Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants.

Under the AOC, a Streamlined Risk Evaluation (SRE) of the Site was performed by the PRPs. Some of the potential exposure pathways associated with the Site were calculated as part of the SRE. The remaining potential exposure pathways were determined based upon standard assumptions historically used by Region 7 in the eastern Missouri dioxin cleanups. The SRE is based on the presumption of continued use of the property as industrial property.

Dioxins were not included in the SRE calculations since action levels for dioxins at other Missouri sites will be used as the basis for evaluation of these constituents. This approach was consistent with the AOC. The dioxin action levels that were used in the preparation of the EE/CA were 10 to 20 ppb 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) Total Equivalents (TEQs) in restricted access areas and 1 ppb 2,3,7,8-TCDD TEQs for non-restricted access areas.

Identification of the constituents of potential concern at the Site, the receptor populations of interest, probable exposure pathways, and the source of logarithms/assumptions/toxicity data used in deriving risk-based target concentrations reflecting exposure of identified receptors are presented below. This presentation of components of the PRPs' SRE has been reviewed by EPA and the state of Missouri and has been modified where appropriate.

CONSTITUENTS OF POTENTIAL CONCERN

From the investigations at the Site, the constituents of potential concern include those presented in the table that follows. The constituents were detected at least once in surface soil or subsurface soil. All constituents of concern pertaining to surface and subsurface soils are being addressed by this Action Memorandum. Groundwater monitoring may indicate additional future response actions.

Table 1
Detected Constituents in Solid Media Sampled - Thompson Chemical - St. Louis, MO

Volatile Organic Constituents a)	Semi-volatile Organic Constituents a)	Pesticides/Dioxins/Chlorinated Dibenzofurans a)
Acetone (O)	Acenaphthene (O)	Aldrin (O, I)
2-Butanone (methyl ethyl ketone) (O, I)	Anthracene (O)	Alpha-Chlordane (O, I) b)
Chlorobenzene (O, I)	Benzo(a)anthracene (O, I)	Gamma-Chlordane (O, I) b)
1,2-Dichlorobenzene (O, I)	Benzo(a)pyrene (O, I)	Chlorinated Dibenzofurans (2,3,7,8-equivalents)
Cis/trans-1,2-Dichloroethene (O)	Benzo(b)fluoranthene (O, I)	2,4-D (O)
Ethylbenzene (O, I)	Benzo(k)fluoranthene (O, I)	4,4'-DDD (O)
Methylene Chloride (O, I)	Benzo(g,h,i)perylene	4,4'-DDE (O)
Tetrachloroethene (O, I)	Bis(2-ethylhexyl) phthalate (O)	4,4'-DDT (O, I)
Toluene (O, I)	Butyl Benzyl Phthalate (O)	Dieldrin (O, I)
1,1,1-Trichloroethane (O, I)	4-Chloroaniline (O)	Dioxins (2,3,7,8- equivalents)
Trichloroethene (O, I)	Chrysene (O, I)	Endrin Aldehyde (O) c)
Xylenes (total) (O, I)	Dibenzo(a,h)anthracene (O, I)	Endrin Ketone (O) c)
	Dibenzofuran (O)	Heptachlor (O, I)
	2,4-Dichlorophenol (O)	Heptachlor Epoxide (O, I)
	Di-n-Butyl Phthalate (O)	Alpha-Hexachlorocyclohexane (O, I)
	Di-n-Octyl Phthalate (O) d)	Beta-Hexachlorocyclohexane (O, I)
	Fluoranthene (O)	Delta-Hexachlorocyclohexane
	Fluorene (O)	Gamma-Hexachlorocyclohexane (O)
	Indeno(1,2,3-cd)pyrene (O, I)	2,4,5-T (O) d)
	Naphthalene (O, I)	2,4,5-TP
	Pentachlorophenol (O)	
	Phenanthrene	
	Pyrene (O)	
	1,2,4-Trichlorobenzene (O, I)	
	2,4,6-Trichlorophenol (O, I)	

a) Symbols O and I in parentheses indicate available oral (O) and inhalation (I) toxicity data for constituents from Missouri CALM September 2001 update.

b) Represents toxicity data for chlordane.

c) Represents toxicity data for endrin.

d) Toxicity data not available in Missouri CALM September 2001 update but available in IRIS.

The areas of concern for cleanup are identified and are illustrated in Figure 6 of the EE/CA. Appendix F of the EE/CA contains 55 figures, each being a summary of one of the particular contaminants identified at the Site and located on a site map. There are three specific areas that require removal actions under this order. They are the shoulders of the road also known as the offsite soil removal area, the southern tank farm including some adjacent areas also known as the onsite soil removal area, and the thirteen rolloff boxes. In addition, the groundwater will be monitored for a period of two years. Based on a review of these areas and the contaminants identified, it has been determined that only a few compounds are responsible for the majority of the threat in each of the areas. There are other compounds that may be present, but they do not represent a threat of the same magnitude and will be mitigated at the same time the contaminant of concern is mitigated.

The contaminants of concern for the shoulders of the road or offsite soil removal area are dioxin which exceeds 1 ppb which is found in this area at levels as high as 2.11 ppb and dieldrin which was found at 85,000 ppb. Current estimates of soil to be removed from this area range as high as 333 cubic yards if a nine hundred-foot long by ten-foot wide area must be excavated to a depth of one foot.

The contaminant of concern for the south tank farm and adjacent areas or onsite soil removal area is dioxin which exceeds the limits set by the *Eastern Missouri Dioxin Protocol* of greater than 10 to 20 ppb. As much as 20.37 ppb were found in this area. Current estimates of material to be removed from this area run as high as 600 cubic yards assuming the entire area is to be excavated to a depth of one foot, and the average cross-section of the berm is ten square feet.

Although a number of compounds have been detected in the groundwater, no contaminants of concern are being specifically identified for the groundwater at this time. Additional monitoring of the groundwater is necessary in order to complete characterization.

The contaminant of concern for the rolloff boxes is dioxin. Final disposal of the contents of the rolloff boxes will be made as mandated by the state in compliance with the state of Missouri's policies governing such disposals. The thirteen rolloff boxes will contain as much as 260 cubic feet of material.

POTENTIALLY EXPOSED RECEPTORS

2. Section 300.415(b)(2)(iv) – High levels of hazardous substances, or pollutants, or contaminants in soils largely at or near the surface that may migrate.

Dioxin and dieldrin contamination has been detected in surface soils above levels of concern. These soils may migrate via airborne dusts surface runoff and by people and/or pets transporting soils/dusts into their homes from the affected areas.

3. Section 300.415(b)(2)(v) – Weather conditions that may cause hazardous substances, or pollutants, or contaminants to migrate or be released.

Weather conditions may cause the onsite contamination to migrate. High wind events could cause the contaminated soils to migrate via airborne dusts. Rain or thundershowers may cause the contaminated soils to migrate via surface runoff, thus creating additional paths of direct contact to the dioxin and dieldrin contamination.

An evaluation of potentially exposed receptors and complete exposure pathways, including review of the previous Conceptual Site Model Report, yielded the receptors and exposure scenarios evaluated as part of the overall EE/CA. Some of the exposure pathways were evaluated as part of the SRE. The remaining potential exposure pathways were determined based upon standard assumptions historically used by Region 7 in the eastern Missouri dioxin cleanups. Exposure routes for dioxin and dieldrin in soils that were evaluated within the SRE are presented in the following table:

Table 2
Receptors and Exposure Scenarios of Relevance for the Streamlined Risk Evaluation

Exposure Route	Onsite Industrial Workers	Onsite Construction Workers	Offsite Construction Workers
Surface Soil			
Inhalation of Vapors	X	X	X
Inhalation of Dust	X	X	X
Incidental Ingestion	X	X	X
Dermal Contact	X	X	X
Subsurface Soil			
Inhalation of Vapors	X	X	X
Inhalation of Dust	X	X	X
Incidental Ingestion	X	X	X
Dermal Contact	X	X	X

As discussed above, the exposure routes for surface and subsurface soils were evaluated based upon standard assumptions historically used by Region 7 in the eastern Missouri dioxin cleanups.

There is currently no exposure to the contamination in the rolloff boxes. Therefore, they are not included in the list of exposure scenarios evaluated. The soils contained in the rolloff boxes were evaluated using standard assumptions historically used by Region 7 in the eastern Missouri dioxin cleanups. The contents of the rolloff boxes will be removed from the Site and disposed of in accordance with applicable laws and regulations either by incineration or land disposal.

There is currently no extraction of groundwater for potable or other uses. The Site is in an industrial area served by a city water supply. Installation of a drinking water well is prohibited by ordinance in St. Louis. The likelihood of groundwater use or extraction is low. Therefore, extraction of groundwater was not considered a complete exposure pathway.

The rationale for selection of the receptors and exposure scenarios evaluated as part of the SRE is presented in the text to follow:

a. Onsite Receptors

Contaminants of concern have been detected in onsite surface soil and/or subsurface soil. Of particular concern is the presence of 2,3,7,8-TCDD which has been detected in soil within the roadside shoulder in the eastern portion of the Site, i.e., along Leonor K. Sullivan Boulevard, at levels exceeding 2 ppb and in the berm around the central tank farm at levels exceeding 20 ppb. Because the Site currently is used for industrial purposes, industrial workers may be considered exposed receptors. Other onsite receptors could include construction workers that are engaged in intrusive activities such as excavations for foundations of new structures. Other exposed populations could include occasional visitors to the Site and maintenance personnel who are not full-time employees. However, exposure duration and frequency of occasional visitors and maintenance personnel who are not full-time employees are expected to be less than that of onsite workers and construction workers. Therefore, onsite industrial workers and construction workers constitute maximally exposed receptors. The exposure scenarios relevant to target onsite receptors are as described below:

i. Industrial Workers

The majority of the Site's surface soil is covered by gravel, concrete, or other cover materials that prevent direct contact with the soil. Therefore, exposures of a worker by incidental ingestion of soil by way of hand-to-mouth contact, dermal contact with soil, and inhalation of dust were not considered to be complete exposure pathways for industrial workers over most of the area of the Site. However, to determine whether a cover over Site soil is needed to protect workers from direct contact with the contaminated soil medium at any depth (assuming that subsurface soil is brought to the surface during some future excavation and spread over the surface), the streamlined evaluation assumed direct contact with onsite soil by an industrial worker.

ii. Construction Workers

Onsite construction could involve intrusive activities resulting in construction workers removing the cover materials and being directly exposed to surface and subsurface soil by incidental ingestion and dermal contact. Exposure to wind-blown dust and inhalation of vapors emanating from soil and underlying affected groundwater are considered to be complete exposure pathways.

Construction work along the right-of-way could result in construction workers becoming exposed to surface and subsurface soil by incidental ingestion, dermal contact, inhalation of dust, and inhalation of vapors emanating from soil. It is likely that passersby or city/county workers engaged in maintaining the right-of-way along the roadway, e.g., mowing, could become exposed, but the magnitude and duration of exposure would not be greater than that of a construction worker.

b. Offsite Receptors

The only offsite receptors relative to this Action Memorandum would be those exposed to either onsite or offsite soils. This would include passersby and city maintenance workers. Their incidental exposure would be similar to that of the industrial worker and the construction worker.

B. Threats to the Environment

Due to the highly urbanized location of the Site, specific threats to the environment have not been identified. A previous study has found no impact from the Site in the Mississippi River. Onsite contaminants exist only within a highly urbanized area with no natural habitat present. The five- to ten-foot strip of grass surrounding the facility is the only unpaved area for a considerable distance adjacent to the Site. No native species have been observed to be present in any permanent or migratory populations at the Site. No threatened or endangered species have been observed or are known to be present within the Site's boundaries. More details are provided in the EE/CA.

IV. ENDANGERMENT DETERMINATION

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

V. PROPOSED ACTIONS AND ESTIMATED COST

A. Proposed Actions

1. Proposed action description

a. Shallow Soil

The removal action includes excavation and offsite disposal (thermal treatment or land disposal) followed by installation of a cap and/or cover over the southern tank farm berm. The cap would be installed after excavation and either offsite thermal treatment or land disposal of dioxin-contaminated soils from the southern tank farm berm which exceed 10 ppb 2,3,7,8-TCDD. The cover consists of installing an asphalt cap underlain with a synthetic liner creating a barrier to direct contact with soil and to reduce leaching of constituents from soil. Excavation and offsite disposal (thermal treatment or land disposal) of soil along Convent Street (Leonor K. Sullivan Boulevard), where contaminant levels of dioxin are above 1 ppb and the area along the road where 85,000 ppb dieldrin was detected, would also occur. The Cleanup Levels for Missouri (CALM) for dieldrin are 100 ppb. The cleanup of the dioxin-contaminated soil will also result in the removal of all contaminated soils impacted by other contaminants with the exception of those soils contaminated by dieldrin, which will be cleaned up as well. The excavated soils will be disposed of by offsite thermal treatment or land disposal in accordance with existing laws and regulations as appropriate based on the availability of appropriate facilities and cost. The Bennett Environmental, Inc. facility in St. Ambrose, Quebec, Canada, has the capability for offsite thermal treatment. The EPA's preference is for the soils to be incinerated. However, if it is determined by the state of Missouri that land disposal without treatment in the state of Missouri is both permissible and appropriate, that option is available as well. If offsite thermal and land disposal options are both available and appropriate at the time of disposal, cost may be used as a factor in selecting the final option. All soil excavation will be verified by post-excavation sampling to determine that cleanup objectives have been met. The EPA's offsite policy, 40 C.F.R. Part 300.440, will be adhered to; and regulatory officials from the state of Missouri will be consulted on the treatment/disposal of contaminated material.

The soil removal to be accomplished with this action will leave the Site within the fence acceptable only for industrial use. The property outside of the fence will be acceptable for any use. Institutional controls will be required to ensure the maintenance of the cap and the use restriction(s) on the property within the fence. Such institutional controls may include zoning restrictions and/or a restrictive covenant or similar land use restrictions.

Of the four response action alternatives evaluated in the EE/CA to address contaminated site soils, the "Cap and/or Cover and Limited Excavation and Offsite Disposal"

option was considered to be the optimum remedy. This option meets all environmental considerations, is consistent with reasonable future use of the Site, and is cost effective.

Thermal treatment is the preferred and permanent response action. However, if final determinations by the state of Missouri permit the land disposal of the dioxin-contaminated soils and debris in-state, such disposal will be permitted. The EE/CA estimated cost to implement this portion of the response action is \$2,200,000.00. The cost of thermal disposal verses the cost for landfilling without treatment does not differ significantly.

b. Rolloff Boxes

Offsite disposal (thermal treatment or land disposal) is based upon availability of facilities, cost, and regulatory requirements. This action consists of transporting the thirteen rolloff boxes offsite for thermal treatment or land disposal. Bennett Environmental, Inc. facility in St. Ambroise, Quebec, Canada, has the capability for offsite thermal treatment.

The rolloff boxes are self-contained and do not present a current exposure route to any member of the public. Once they are removed from the Site, no further onsite action concerning the rolloff boxes or their contents is required.

The offsite disposal will be in accordance with the offsite policy and will be coordinated with state of Missouri regulatory officials. No post-removal site control will be required for this media.

Of the three options considered in the EE/CA for fate of the rolloff boxes, the "Offsite Thermal Treatment or Land Disposal" option was considered as the only desirable and feasible option given the conditions at the Site, the cost of the remedy, and the residual risk resulting from the remedy.

The EPA's preference is for the material to be incinerated. However, if it is determined by the state of Missouri that landfilling is both permissible and appropriate, that option is available as well. The rolloff boxes contain dioxin-contaminated soils, debris, and personal protective equipment. The estimated cost from the EE/CA for thermal treatment is \$360,000.00.

2. Contribution to Remedial Performance

The Site is currently not on the NPL. The actions proposed above will effectively resolve all known issues at the Site. The three areas of concern - the contaminate Site soils, the thirteen rolloff boxes, and the potential for contamination to leave the Site via the MSD sewer line - represent the defined areas of risk at the Site. No additional remedial actions are planned for the Site at this time. There are, however, two additional areas where future investigations

may identify future risks. Those areas are the groundwater at the Site and a buried wooden conduit and associated material and soils identified during the tank removal.

Action beyond that proposed in this Action Memorandum which may be taken at the Site involves activities not yet defined. It has not been determined whether additional actions will be necessary to contain or treat groundwater contaminated as a result of activity at the Site, nor has the wooden conduit been evaluated sufficiently to determine if any additional actions are warranted. These are areas to be evaluated in the future.

3. Description of Alternative Technologies

It is EPA's preference for the dioxin-contaminated soil, debris, and personal protective equipment to be incinerated. Currently, Bennett Environmental, Inc. in Canada is the only source of this treatment. There are issues yet to be completely resolved that may allow some or all of the material to be landfilled. That possibility along with the issue of only one source for incineration make it desirable to retain the landfill option in this instance. No other alternative technologies are anticipated.

4. EE/CA

The PRPs' EE/CA and EPA's EE/CA Approval Memorandum are part of the Administrative Record for the Site. The remedy outlined in this Action Memorandum comes from and is supported by the EE/CA.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

Section 300.415(j) of the NCP provides that fund-financed removal actions under Section 104 and removal actions pursuant to CERCLA Section 106 shall, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental facility citing laws. The following specific ARARs have been identified for this action:

Subtitle D of the Resource Conservation and Recovery Act (RCRA), Section 1008, Section 4001, et seq.; 42 U.S.C. §6941, et seq.; State or Regional Solid Waste Plans; and implementing federal and state regulations. All excavated soil that may be disposed in a sanitary landfill will comply with Subtitle D requirements.

Occupational Safety and Health Act, 29 C.F.R. part 1910, will be applicable to all appropriate actions. Requirements of 29 C.F.R. part 1910 will be followed.

Subtitle C of RCRA, 42 U.S.C. Section 6901, et seq.; 40 C.F.R. part 260, et seq.; and implementing federal and state regulations for contaminated soils that are considered RCRA hazardous waste.

Department of Transportation (DOT) regulations, 49 C.F.R. parts 107, 171-177.

DOT hazardous material transportation regulations may be relevant and appropriate for transportation of the contaminated soils to the disposal facility.

A complete set of ARARs identified by the state of Missouri can be found in Appendix 2.

6. Post-removal site control will be required at the Site to ensure the effectiveness and integrity of the removal action. Such control at the Site will include monitoring, maintaining the cap (which includes making all necessary repairs to the cap), and ensuring institutional controls remain effective.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

The proposed removal action for the Site should be taken. Should these actions be delayed or not taken, the potential threats to human health and the environment will continue. Increased potential for deterioration of the rolloff boxes with the passage of time creates potential for additional significant exposures.

VII. OUTSTANDING POLICY ISSUES

It has not been determined whether the issue of land disposal of dioxin-contaminated material based solely on the state's determination of appropriate disposal is considered an issue of national significance.

VIII. ENFORCEMENT

This Action Memorandum is to be enforced via an AOC or similar enforceable legal document. The parties who conducted the EE/CA are anticipated to implement this removal action.

VIII. RECOMMENDATION

This decision document represents the selected removal action for the Site in St. Louis, Missouri. This action was developed in accordance with CERCLA, as amended by the Superfund

Amendments and Reauthorization Act of 1986, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site, which includes an approved EE/CA.

Conditions at the Site meet the NCP Section 300.415(b) for a removal action, and I recommend your approval of the proposed removal action. Response costs for the Site, including EPA's oversight, will be borne by the respondents. Estimated payments of EPA's oversight cost will be deposited in a special account for the Site.

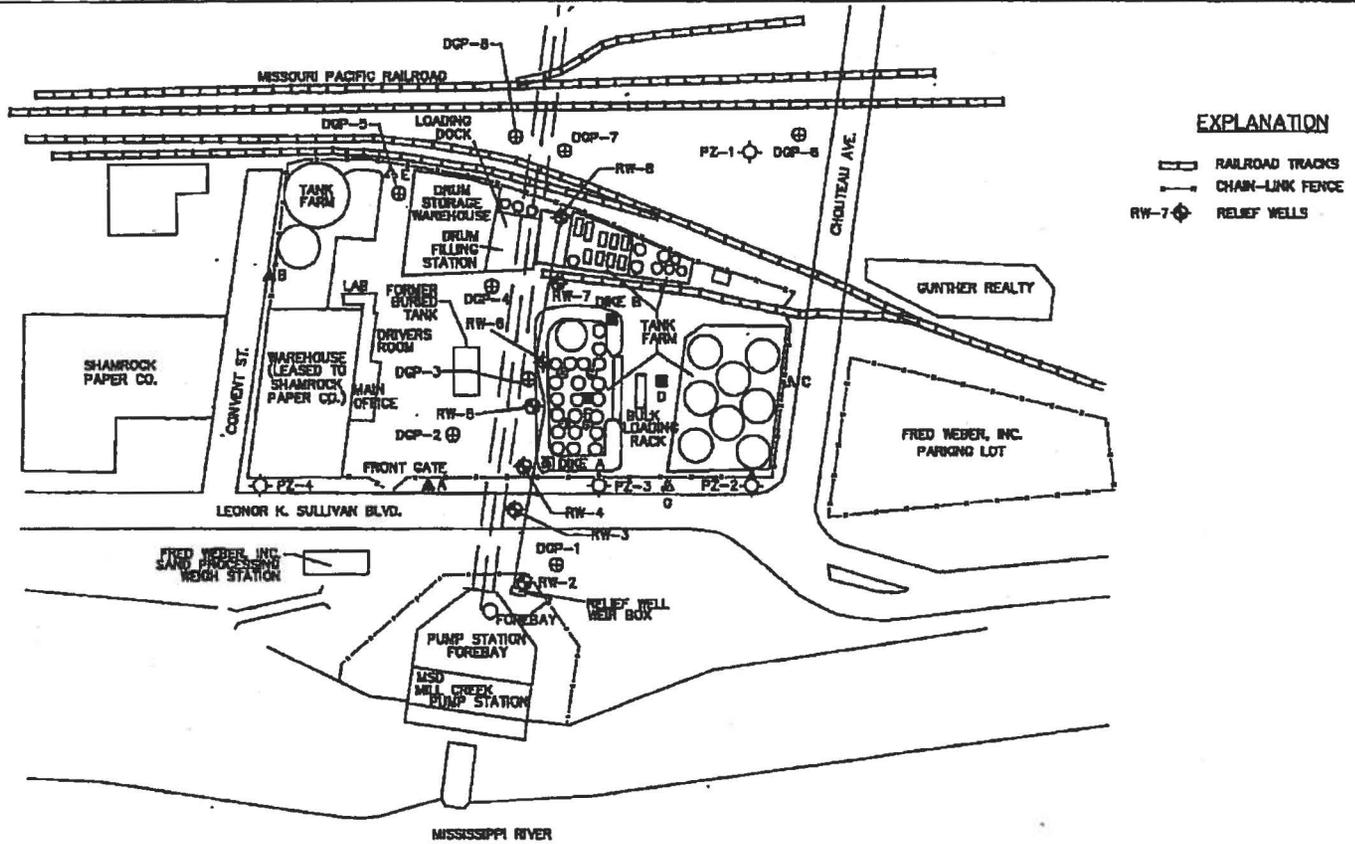
Approved:



Cecilia Tapia, Director
Superfund Division

7/13/06
Date

Appendix 1



EXPLANATION

- ▬ RAILROAD TRACKS
- ▬ CHAIN-LINK FENCE
- RW-7 ◊ RELIEF WELLS

SCALE: 1" = 100'

<p align="center">SECOR International Incorporated 3805 S. Cussepper Cir., Suite 0 Springfield, Missouri 65807</p>	<p>Drawn By: SES</p>	<p>Checked By: DG</p>	<p>PROJECT NO.: 022.11265.500</p>	<p>FIGURE 2</p>
	<p>Dep. Date: 9-3-01</p>	<p>Rev. Date: 11/16/01</p>	<p>Client: Thompson Chemical</p>	<p>Thompson Chemical St. Louis, Missouri</p>

Appendix 2

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

May 15, 2002

Mr. Steven Kinser
Remedial Project Manager
U.S. EPA, Region VII
901 North 5th Street
Kansas City, KS 66101

Dear Mr. Kinser:

Pursuant to EPA's request dated April 18, 2002, these are Missouri's Applicable or Relevant and Appropriate Requirements (ARARs) that have been identified for the Engineering Evaluation/Cost Analysis (EE/CA) at the Superior Solvents/Thompson Chemical Site. Only action-specific and chemical-specific criteria, as found below and in Tables 1 and 2, apply to this R/FS. Note where listed, the federal regulations are incorporated by reference in the state regulations.

The ARARs provided below were based on the assumption that any off-site disposal of site derived waste and contaminated soil, liquid, or debris will be in accordance with the CERCLA Off-Site Rule, the Resource Conservation and Recovery Act (RCRA), and the Toxic Substances Control Act (TSCA). This includes the off-site disposal of the thirteen roll-offs containing dioxin-impacted soils.

1. Action-specific ARARs:

L. 1981 H.S.H.B. 1192. This act relates to the protection of caves (including sinkholes) and cave life from vandalism and pollution.

L. 1991 S.B. 221, RSMo 256.621. This act and the associated revised statute relate to surface and groundwater tracing. It requires that all persons engaging in water tracing register with and report the results of the tracing to the division.

2. Chemical-specific ARARs:

Characterization of the wastes at the site would be required to determine if these wastes meet the definition of hazardous waste under 10 CSR 25-3.260(1)(H) and 40 CFR Part 260, Hazardous Waste Management System: General, as incorporated in 10 CSR 25-3.260(1).

Mr. Steven Kinser
May 15, 2002
Page Two

40 CFR Part 261, Identification and Listing of Hazardous Waste, as incorporated in 10 CSR 25-4.261, Methods for Identifying Hazardous Waste. In particular,

Exclusions listed under 40 CFR 261.4, such as for scrap metal (261.4(a)(13)), for household hazardous waste (261.4(b)(1)), and for waste scrap leather from the shoe manufacturing industry (261.4(b)(6)(ii)(G)), for example, and Requirements for Universal Waste under 40 CFR 261.9, applicable to batteries and thermostats, and other appropriate portions of Subparts A, General, and B, Criteria for Identifying the Characteristics of Hazardous Waste and for the Listing of Hazardous Waste, and Characteristics of Hazardous Waste, Subpart C, and Lists of Hazardous Waste, Subpart D.

3. Combined ARAEs for Compliance with applicable Missouri State Rules for the entire State of Missouri:

The Air Pollution Control Program (APCP),

- 10 CSR 10-6.010, Ambient Air Quality Standards.
- 10 CSR 10-6.050, Start-Up, Shutdown, and Malfunction Conditions.
- 10 CSR 10-6.060, Construction Permits Required (this would include any substance requirements of the rule such as monitoring).
- 10 CSR 10-6.065, Operating Permits (this would include any substance requirements of the rule such as record keeping).
- 10 CSR 10-6.075, Maximum Achievable Control Technology Regulations;
- 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants;
- 10 CSR 10-6.110, Submission of Emission Data, Emission Fees and Process Information (this would include any substance requirements of the rule such as emission data);
- 10 CSR 10-6.130, Controlling Emissions during Episodes of High Air Pollution Potential;
- 10 CSR 10-6.170, Restrictions of Particulate Matter to the Ambient Air beyond the Premises of Origin
- 10 CSR 10-6.180, Measurement of Emissions of Air Contaminants; and
- 10 CSR 10-6.300, Conformity of General Federal Actions to State Implementation Plans.

Ambient concentrations of volatile organic compounds should be less than the respective Acceptable Ambient Levels (AAL) when measured at the site boundary. The AAL is the maximum ambient air concentration of a chemical at site's boundary that is not expected to cause any adverse human health effects during a defined period of exposure. The APCP uses the AAL as guidance to determine permit limits based on potential AAL exceedances. The APCP staff recommend performing an ambient air analysis of impacts for these pollutants. If dispersion modeling cannot confirm that impacts are less than the AAL, monitoring should

Mr. Steven Kinser
May 15, 2002
Page Three

begin, accompanied by site control plans if exceedances should occur. Please find enclosed a copy of the *Draft Acceptable Ambient Levels for Missouri*. (See enclosed addendum)

Modeling for National Ambient Air Quality Standards (NAAQS) and the APCA AALs of any Hazardous Air Pollutants (HAPs) must be done at worst-case conditions (this would include emergency release events which bypass all air pollution control equipment), following the Air Modeling Protocol approved.

- a. Concentrations are to be evaluated at the property boundaries by APCA Technical Support Section;
- b. Additional actions are required for exceeding the NAAQS or AALs (at 1 in 100,00 risk level);
- c. Modeled values within 20% of either NAAQS or AALs will require pre- and post-ambient monitoring;
- d. Adequate testing and monitoring as approved by APCA to assure compliance with all applicable requirements; and,
- e. If potential emission levels trigger a "major" review (100 tons per year of any regulated pollutant based on worst-case hourly rate 8760 hours), additional public participation requirements would be required and a separate case-by-case air pollutant control equipment (Best Available Control Technology (BACT)) evaluation.

The Water Pollution Control Program (WPCP) assumes that all discharges will be on-site discharges that will not leave, or have the potential to leave, the site. This includes stormwater discharges and groundwater movement. Any discharge that flows off-site may need a National Pollution Discharge Elimination System (NPDES) permit.

Enclosed are generic ARARs provided by WPCP, which outline minimum requirements that must be met in order to assure compliance with the Missouri Clean Water Law. Site-specific ARARs can be developed if WPCP forms A, C, and D are completed and submitted.

- a. Missouri Clean Water Law, Chapter 644, RSMo. This law establishes requirements relating to water pollution control and authorizes the Missouri Clean Water Commission to further establish rules to maintain and improve the quality of Missouri waters.
- b. Permit Regulations, 10 CSR 20-6.010. These rules establish the administrative and substantive requirements related to wastewater treatment permits. Some requirements such as obtaining the permit document are substantially administrative in nature and, therefore, not required for onsite Superfund actions. Other requirements such as characterizing the storm-water or wastewater discharged from the site are substantive and necessary for the establishment of water contaminant limitations for the removal or remedial action.

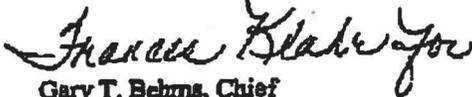
Mr. Steven Kinser
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Page Four

c. Water Quality Standards, 10 CSR 20-7.031. These rules establish the classification and beneficial uses of surface water and groundwater in Missouri.

If you have any comments or questions regarding this information, please contact Ms. Candice McGhee of my staff at (573) 751-8629. Thank you for the opportunity to identify these State of Missouri ARARs.

Sincerely,

HAZARDOUS WASTE PROGRAM



Gary T. Behms, Chief
Superfund Section

GTB:cmk

Enclosures

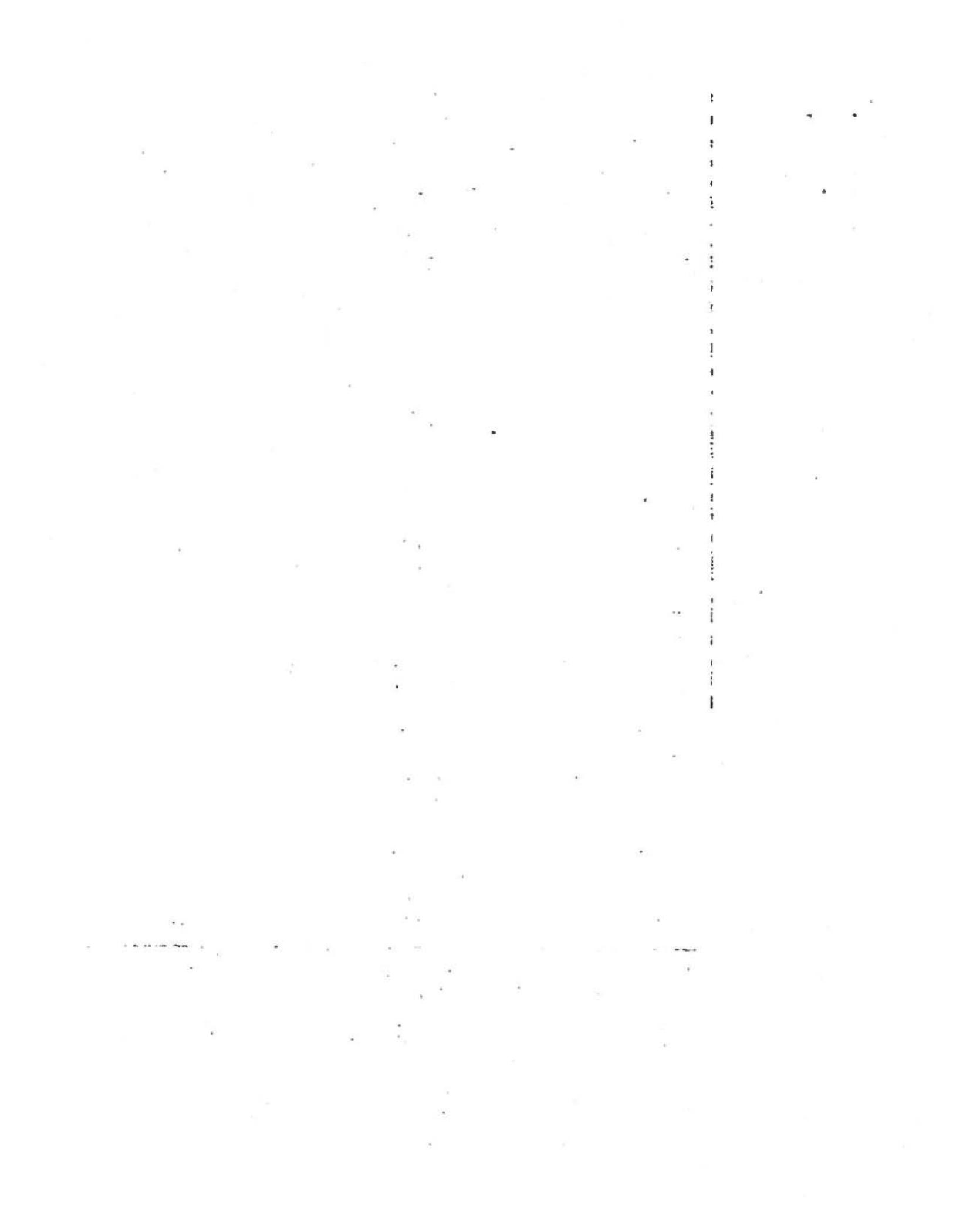
TABLE 1: ACTION SPECIFIC REQUIREMENTS

Action Subject to Requirement	Requirement	Reason why Requirement is an ARAR	Regulatory Citation
Site-specific geological interpretation	Any site-specific geological interpretations that affect human health and safety must be regulated in this state.	It is required that the practice of geology, as it affects human health and safety, be regulated in this state.	4 CSR 143-1.010
Regulates discharges to losing streams	This rule regulates any potential discharges to losing streams.	It is required that any discharge which could go to a losing stream be evaluated.	10 CSR 20-7.010
Installation or abandonment of domestic supply wells	Domestic supply wells need to be installed or abandoned in accordance with the Missouri Well construction codes	The potential for the installation/abandonment of domestic supply wells exists during this action.	10 CSR 23-3.110
Installation or abandonment of monitoring wells	Monitoring wells need to be installed or abandoned in accordance with the Missouri Well construction codes.	The potential for the installation/abandonment of monitoring wells exists during this action.	10 CFR 23.4.010
Off-site disposal of containerized wastes, bulked wastes, & excavated wastes	Regulated quantities of hazardous waste are excluded from disposal at permitted solid waste facilities. The waste must be tested to determine its handling & disposal.	The potential for the disposal of containerized waste and excavated contaminated soil exists.	10 CSR 80-3.010 (2) & (3)
Off-site disposal of containerized wastes, bulked wastes, & excavated wastes	Containerized wastes, bulked wastes, & excavated wastes that are removed for off-site disposal shall be subject to hazardous waste determination requirements.	It is required that any waste generated from a site containing known hazardous wastes be subject to hazardous waste determination requirements in accordance with RCRA regulations if they are removed for off-site disposal.	40 CFR Part 261, as incorporated by reference in 10 CSR 24-4.261
Excavation and transportation of contaminated waste at a site.	Containerized wastes, bulked wastes, & excavated wastes that are removed for off-site disposal shall be handled in accordance with the applicable generator regulations.	It is required that any waste generated from a site containing known hazardous wastes shall be handled in accordance with applicable generator RCRA regulations if they are removed for off-site disposal.	40 CFR Part 262, as incorporated by reference in 10 CSR 25-5.262.
Off-site disposal of containerized wastes, bulked wastes, & excavated wastes	Wastes removed and containerized for shipment off-site shall be handled in accordance with the applicable transportation requirements.	It is required that any waste generated from a site containing known hazardous wastes shall be handled in accordance with applicable transportation RCRA requirements if they are removed for off-site disposal.	40 CFR Part 263, as incorporated by reference in 10 CSR 25-6.263.
Bulkling of wastes	Waste bulkling activities may be subject to particular to general waste analysis requirements, and general requirements for ignitable, reactive, or incompatible wastes.	It is required that any waste generated from a site containing known hazardous wastes shall be handled in accordance with applicable transportation RCRA requirements if they are removed for off-site disposal.	40 CFR part 264 subpart B, as incorporated by reference in 10 CSR 25-7.264(2)(B); 40 CFR 264.13; 40 CFR 264.17
Bulkling of wastes	Waste bulkling activities may be subject to contingency plan and emergency procedure requirements.	It is required that any waste generated from a site containing known hazardous wastes shall be handled in accordance with applicable transportation RCRA requirements if they are removed for off-site disposal.	40 CFR part 264 subpart D, as incorporated by reference in 10 CSR 25-7.264(2)(D)
Off-site disposal of containerized wastes, bulked wastes, and excavated wastes	Containerized wastes, bulked wastes, and excavated wastes that are removed for off-site disposal may be required to meet manifest requirements prior to shipment.	It is required that containers are managed in accordance with RCRA regulations.	40 CFR part 264 subpart E, as incorporated by reference in 10 CSR 25-7.264(2)(E)
Handling of wastes in containers	Wastes in containers shall be handled in accordance with the container use, management and closure requirements	It is required that waste in containers are managed in accordance with RCRA regulations.	40 CFR part 264 subpart I, as incorporated by reference in 10 CSR 25-7.264(2)(I)

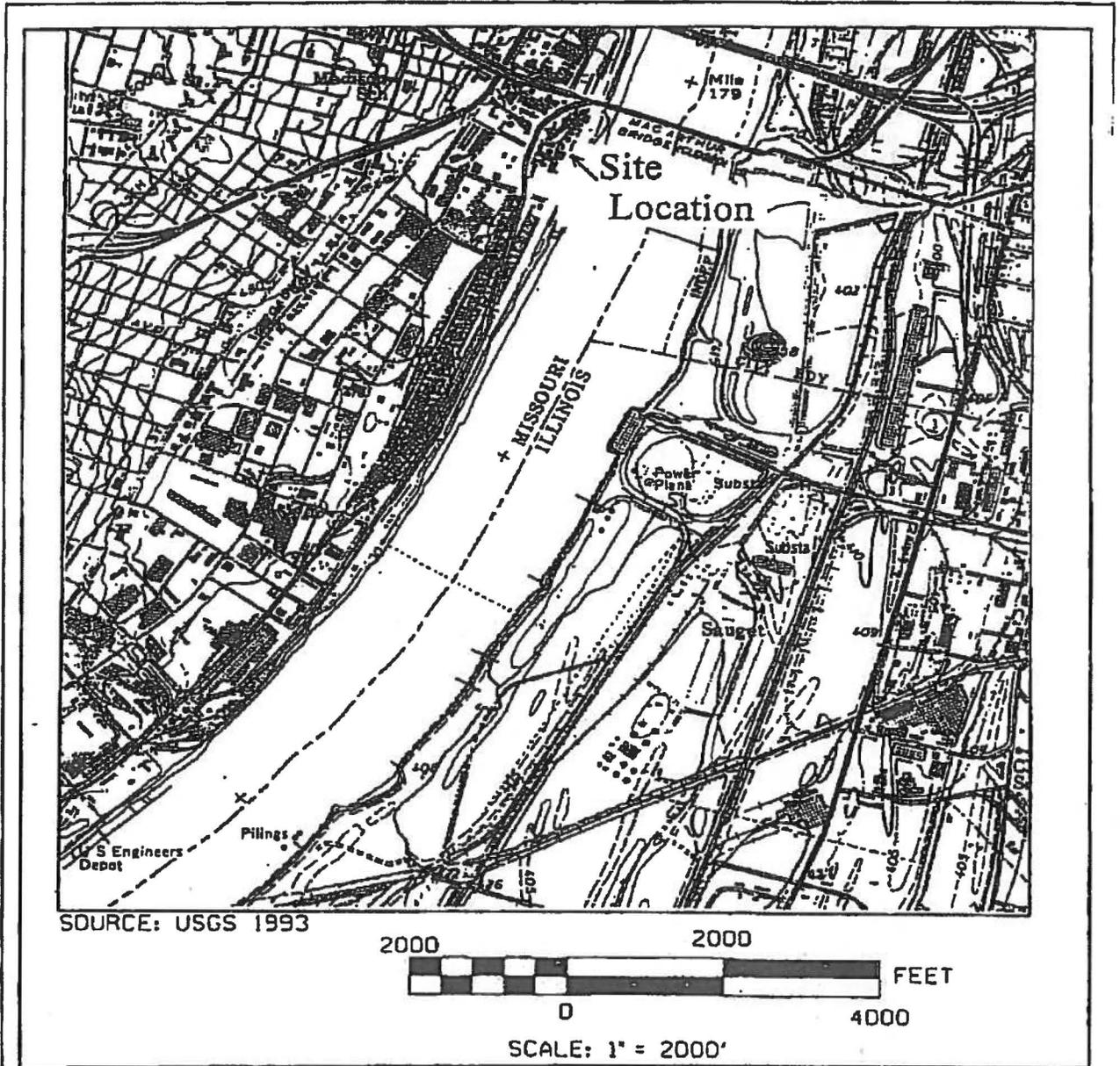
Handling of waste in tanks	Waste in tanks shall be handled in accordance with the tank use, management and closure requirements.	It is required that waste in tanks are managed in accordance with RCRA regulations.	49 CFR part 264 subpart J, as incorporated by reference in 10 CSR 25-7.264(Q)(1)
Handling of waste	Waste handling activities may be subject to standards for miscellaneous tanks. Handling of wastes may be considered treatment and require standards to prevent adverse reactions from incompatible mixing.	It is required that waste handling is managed in accordance with RCRA regulations.	49 CFR part 264 subpart X, as incorporated by reference in 10 CSR 25-7.264(Q)(2)
Disposal of contaminated waste, leached waste or any soil generated during the excavation activities	The best disposal restrictions will apply to the disposal of contaminated waste, leached waste or any soil generated during the excavation activities.	It is required that hazardous waste is managed according to RCRA Land Disposal Restrictions.	40 CFR Part 268, as incorporated in 10 CSR 25-7.268
Storage of waste or contaminated soil in tanks or containers	Air emission standards for tanks and containers may apply to any waste or contaminated soil stored in tanks or containers.	It is required that containers are managed in accordance with RCRA regulations.	40 CFR Part 264, Subpart CC, as incorporated by reference in 10 CSR 25-7.264(Q)(C)

TABLE 2. CHEMICAL-SPECIFIC REQUIREMENTS

Action Subject to Requirement	Requirement	Reason why Requirement is an ABAR	Regulatory Citation
Discharging of treated surface water to a Creek	Testing for all pollutants in part A of Form C of the Missouri discharge permit application within 6 mo of initiating discharge is required. Testing for all pollutants marked as deferred present in part B of Form C and Form D of the Missouri discharge permit application is also required. The whole effluent toxicity (WET) tests must be completed annually.	To ensure water quality of receiving stream.	10 CSR 20-7.015
Discharging of treated surface water to a Creek	Water constituents in the discharge treated water shall not cause or contribute to exceedance of water quality standards set for groundwater use.	Portion of the receiving stream are classified as losing within two miles downstream of the Site. Discharges to this stream shall be considered releases to a losing stream.	10 CSR 20-7.010



APPENDIX C



SECOR
International Incorporated

SITE LOCATION MAP
Thompson Chemical Site
St. Louis, Missouri

FIGURE:

1