Westlake Landfill
OU02
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

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Site: West Lake Landfill
ID: MOD079900932
Break: 10.6
Other: OU F 2
12-19-94
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December 19, 1994

Michael D. Hockley, Esq.
Spencer Fane Britt & Browne
1400 Commerce Bank Bldg.
1000 Walnut St.
Kansas City, Missouri 64106-2140

Re: West Lake Landfill - OU-2
Docket No. VII-94-F-0025

Dear Mike:

Enclosed you will find a copy of the fully executed and file-stamped Administrative Order on Consent pertaining to the above-referenced matter. Pursuant to Section XXVII of the Order, the Order's effective date is the date on which the Order is signed by the Acting Director of Region VII's Waste Management Division, which was December 14, 1994.

Thank you for your efforts is getting this aspect of this matter concluded in a timely and amicable manner. I look forward to working with you and Laidlaw during the course of this operable unit.

Sincerely,

David A. Hoefer
Assistant Regional Counsel

Westlake Landfill
0402
MOD079900932

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

IN THE MATTER OF: LAIDLAW WASTE SYSTEMS (BRIDGETON), INC. Respondent. Proceeding under Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act as amended 42 U.S.C §§ 9604, 9622(a), 9622(d)(3).	Docket No. VII-94-F-0025

ADMINISTRATIVE ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

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I. INTRODUCTION

1. This Administrative Order on Consent ("Consent Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and Laidlaw Waste Systems (Bridgeton), Inc. ("Respondent"). This Consent Order concerns the preparation of, performance of, and reimbursement of all costs incurred by EPA in connection with a remedial investigation and feasibility study ("RI/FS") for Operable Unit Number 2 ("OU-2") at the West Lake Landfill National Priorities List ("NPL") Site located at Bridgeton, Missouri. "Site" as used herein, shall refer to the area depicted on Attachment A hereto, including all areas where landfill activities have been, or are being conducted at the West Lake Landfill, with the exception of Radiological Areas 1 and 2 which are being investigated under an Administrative Order on Consent for Remedial Investigation/Feasibility Study, Operable Unit Number 1, EPA Docket No. VII-93-F-0005, and includes areas where hazardous substances, pollutants or contaminants from the Site may have migrated.

II. JURISDICTION

2. This Consent Order is issued pursuant to the authority vested in the President of the United States by Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9622(a), and 9622(d)(3) ("CERCLA"). This authority was delegated to the Administrator of EPA by Executive Order 12580 of January 23, 1987, 52 Fed. Reg. 2923, and was further delegated to EPA's

Regional Administrators on September 13, 1987 and April 15, 1994 by EPA Delegation No. 14-14-C. This authority has been redelegated by the Regional Administrator of EPA Region VII to the Director of the Waste Management Division of EPA Region VII by Delegation R7-14-14C dated May 16, 1988.

3. Respondent agrees to undertake all actions required by the terms and conditions of this Consent Order. In any action by EPA or the United States to enforce the terms of this Consent Order, Respondent consents to and agrees not to contest the authority or jurisdiction of EPA to issue or enforce this Consent Order, and agrees not to contest the validity of this Consent Order or its terms.

III. PARTIES BOUND

4. This Consent Order shall apply to and be binding upon EPA and Respondent and their respective agents, successors, and assigns, and upon all persons, including contractors and consultants, acting under or on behalf of EPA or Respondent with regard to the Site. Respondent's participation in this Consent Order, however, shall not be construed as an admission of liability or of EPA's findings of fact or conclusions of law and determinations contained in this Consent Order. The signatories to this Consent Order certify that they are authorized to execute and legally bind the parties they represent to this Consent Order. No change in Respondent's ownership or corporate status or in the ownership of the Site shall alter Respondent's responsibilities under this Consent Order.

5. Respondent shall provide a copy of this Consent Order to any subsequent owners or successors before all or substantially all of its ownership rights or stock or assets are transferred in a corporate acquisition. Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Consent Order within fourteen (14) days (unless otherwise specified herein, "days" shall refer to calendar days) after the effective date hereof or the date of retaining their services, whichever is later. Respondent shall condition any such contracts upon satisfactory compliance with all applicable terms of this Consent Order. Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Consent Order and shall use its best efforts to ensure that its subsidiaries, employees, contractors, consultants, subcontractors and agents comply with all applicable terms of this Consent Order.

IV. STATEMENT OF PURPOSE

6. In entering into this Consent Order, the objectives of EPA and Respondent are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site by conducting a remedial investigation; (b) to determine and evaluate alternatives for remedial action (if any) to prevent, mitigate, or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or

contaminants at or from the Site, by conducting a feasibility study; (c) to recover all of EPA's past costs with regard to this operable unit, as well as all response and oversight costs incurred by EPA with respect to this Consent Order in accordance with the procedures set forth in Section XXII (Reimbursement of EPA's Response and Oversight Costs).

7. The activities conducted under this Consent Order are subject to approval by EPA and shall provide all appropriate and necessary information for the RI/FS, and for a Record of Decision ("ROD") that is consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities conducted under this Consent Order shall be conducted in compliance with the applicable EPA guidances, policies, and procedures which EPA will identify in writing in advance. Activities conducted in compliance with this Consent Order shall be deemed in compliance with the NCP.

V. EPA'S FINDINGS OF FACT

EPA makes the following Findings of Fact, which Respondent does not admit:

8. The Site is comprised of approximately 200 acres located at 13570 St. Charles Rock Road, Bridgeton, St. Louis County, Missouri, and is approximately 4 miles west of St. Louis' Lambert Field International Airport, near the intersection of Highways I-70 and I-270. Limestone was quarried at the Site from 1939 to 1987. Since 1962 portions of the quarried property have been used for landfilling municipal refuse, industrial solid and liquid wastes,

and construction demolition debris.

9. In May 1986, the Oak Ridge Associated Universities ("ORAU") sampled water wells on and close to the Site to determine if hazardous substances from the Site had migrated into the groundwater. Eighteen monitoring wells located in and around the Landfill and screened in the shallow, intermediate, and deep parts of the alluvial aquifer were sampled. Two sampling rounds were evaluated. Round 1 occurred from December 11-15, 1985 and Round 2 from May 19-21, 1986. All samples were analyzed for priority pollutants listed in 40 C.F.R. Part 122, Appendix D. This list includes volatile organics, acid and base/neutral extractables, pesticides, polyclorinated biphenyls, total phenols, total cyanide, and metals.

10. Chemical results indicated that certain wells contained detectable levels of several hazardous substances, some of which are common laboratory contaminants. Compounds detected during Round 1 included methylene chloride at levels ranging from 2 to 83 micrograms per liter ("ug/l") or parts per billion ("ppb") and bis-2-ethyhexyl phthalate at levels ranging from 4 to 477 ppb. Methylene chloride and bis-2-ethyhexyl phthalate are common laboratory contaminants as specified on page 5-16 of EPA's "Risk Assessment Guidance for Superfund," Volume I, Human Health Evaluation Manual [Part A]. Methylene chloride and bis-2-ethyhexyl phthalate were present at the levels of 2.5 ppb and 1 ppb, respectively, in blank samples analyzed concurrently with the ORAU samples. Other compounds detected during Round 1 include phenol at

levels ranging from 7 to 19 ppb; total cyanide at levels ranging from 1 to 6 ppb; lead at 13 ppb (with the maximum concentration detected in a background monitoring well); and zinc at levels ranging from 2 to 1,240 ppb, which were determined to be naturally occurring. Trace amounts of the following pesticides were also detected: lindane, chlordane, dieldrin, endrin, 4,4'DDD, 4,4' DDE, 4,4' DDT, and hexchlorobenzene, all of which were below .70 ppb. Round 2 sampling results detected methylene chloride at levels ranging from 6 to 10 ppb, bis-2-ethyhexyl phthalate at 10 ppb, total cyanide at 7 ppb, zinc at levels ranging from 2 to 2,000 ppb, and arsenic at levels ranging from 4 to 9 ppb. Phenol was not detected in any Round 2 samples. Compounds such as antimony, nickel, and thallium also were detected at low levels. No pesticides were detected in Round 2 samples.

11. In a report entitled "Hydrogeological Investigation, West Lake Landfill, Primary Phase Report" prepared by Burns & McDonnell in October 1986, it was stated that the predominant groundwater flow direction in the alluvial aquifer in the vicinity of the Site is northwestward toward the Missouri River. The water table generally slopes toward the Missouri River, although changes in gradient direction apparently occur at some times during the year in response to changes in the stage of the Missouri River. The alluvium at shallow depths is composed of silt and clay. The alluvium in the deeper part of the aquifer is coarser grained, consisting primarily of coarse sand and gravel.

12. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the NPL, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on August 30, 1990, 55 Fed. Reg. 35502.

13. Laidlaw Waste Systems (Bridgeton), Inc. is a corporation organized and existing pursuant to the laws of the State of Missouri.

14. At the time of the disposal of hazardous substances at the Site, West Lake Landfill, Inc. (now known as Laidlaw Waste Systems (Bridgeton), Inc. and referred to herein as Laidlaw) owned or operated portions of the Site, and Laidlaw is the current owner and/or operator of portions of the Site.

VI. EPA'S CONCLUSIONS OF LAW AND DETERMINATIONS

EPA makes the following Conclusions of Law and Determinations, which Respondent does not admit:

15. The Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

16. There has been a "release" or threat of a release of a "hazardous substance" at the Site as defined in Section 101(22) and 101(14) of CERCLA, 42 U.S.C. §§ 9601(22) and 9601(14), and 40 C.F.R. § 300.5.

17. Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

18. Respondent is a responsible party pursuant to Sections 104, 107, and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607, and 9622.

19. The actions required by this Consent Order are necessary to protect the public health, welfare, or environment, are practicable and in the public interest, are consistent with CERCLA and the NCP, and will expedite effective remedial action and minimize litigation, all in accordance with Sections 104 and 122 of CERCLA, 42 U.S.C. §§ 9604 and 9622.

VII. NOTICE TO THE STATE

20. By providing a copy of this Consent Order to the State of Missouri, EPA is notifying the State of Missouri that this Consent Order is being issued and that EPA is the lead agency for coordinating, overseeing, and enforcing the activities required hereunder.

VIII. WORK TO BE PERFORMED

21. All activities performed pursuant to this Consent Order (the "Work") shall be under the direction and supervision of qualified personnel. Within thirty (30) days of the effective date of this Consent Order, and before the Work outlined below begins, Respondent shall notify EPA in writing of the names, titles, and qualifications of the principal personnel, including contractors, subcontractors, consultants, and laboratories, to be used in carrying out the Work. The qualifications of the principal persons responsible for undertaking the work for Respondent shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Consent Order is contingent on Respondent's demonstration to EPA's satisfaction that Respondent is qualified to perform properly and

promptly the actions set forth in this Consent Order. If EPA disapproves of the technical qualifications of any person, Respondent shall notify EPA of the identity and qualifications of a replacement within thirty (30) days of receipt of EPA's disapproval. If EPA disapproves of the replacement, EPA reserves the right to terminate this Consent Order and to conduct the RI/FS (or any portion thereof), and to seek reimbursement for costs and penalties from Respondent. During the course of the RI/FS, Respondent shall notify EPA in writing of any changes or additions in the principal personnel used to carry out the Work, including their names, titles, and qualifications. EPA shall have the same right to approve changes and additions to principal personnel as it has hereunder regarding the initial notification.

22. Respondent shall conduct activities and submit deliverables as provided by this Consent Order and the attached RI/FS Statement of Work ("SOW"), which is incorporated herein by this reference, for the development of the RI/FS. All such work shall be conducted in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive 9355.3-01), Streamlining the RI/FS for CERCLA Municipal Landfill Sites (OSWER Directive No. 9355.3-11FS, September, 1990), Presumptive Remedy for CERCLA Municipal Landfill Sites (OSWER Directive No. 9355.0-49FS, September, 1993), guidances referenced therein, and guidances referenced in the SOW, as may be amended or modified by EPA. The

general activities that Respondent is required to perform are identified below. The tasks that Respondent shall perform are described more fully in the SOW and guidances. The activities and deliverables identified below shall be developed as provided in the EPA-approved RI/FS Workplan and Sampling and Analysis Plan, and shall be submitted to EPA as provided. All work performed under this Consent Order shall be in accordance with the schedules herein, and in full accordance with the standards, specifications, schedules and other requirements of the RI/FS Workplan and Sampling and Analysis Plan, as initially approved or modified by EPA, and as may be amended or modified by EPA.

a. **Task I - Scoping**. EPA determines the Site-specific objectives of the RI/FS and devises a general management approach for the Site, as stated in the attached SOW. Respondent shall conduct the remaining scoping activities as described in the SOW and referenced guidances. At the conclusion of the project planning phase, Respondent shall submit the following deliverables to EPA:

(1) RI/FS Workplan. Within sixty (60) days of the effective date of this Consent Order, Respondent shall submit to EPA a complete RI/FS Workplan prepared in accordance with the SOW. If EPA disapproves of or requires revisions to the RI/FS Workplan, in whole or in part, Respondent shall amend and submit to EPA a revised RI/FS Workplan which is responsive to all of EPA's comments, within forty-five (45) days of receiving EPA's comments.

(2) Sampling and Analysis Plan. Respondent shall submit to EPA a Sampling and Analysis Plan prepared in accordance with the SOW and the schedule set forth in the EPA approved RI/FS Workplan. This Sampling and Analysis Plan shall consist of a Field Sampling Plan ("FSP") and a Quality Assurance Project Plan ("QAPP") as described in the SOW and guidances. If EPA disapproves of or requires revisions to the Sampling and Analysis Plan, in whole or in part, Respondent shall amend and submit to EPA a revised Sampling and Analysis Plan which is responsive to all of EPA's comments, within forty-five (45) days of receiving EPA's comments.

(3) Site Health and Safety Plan. Within sixty (60) days of the effective date of this Consent Order, Respondent shall submit to EPA a Site Health and Safety Plan.

b. **Task II - Site Characterization**. Following EPA approval or modification of the RI/FS Workplan and Sampling and Analysis Plan, Respondent shall implement the provisions of these Plans to characterize the Site. Respondent shall complete Site characterization in accordance with the schedule set forth in the EPA-approved RI/FS Workplan. Respondent shall provide EPA with analytical data in a form showing location, medium and results within forty-five (45) days of receipt of data from the analytical laboratory or shall include the analytical data with the monthly progress report for the month in which Respondent completes validation of the analytical data, whichever occurs first. Within seven (7) days of completion of field activities, Respondent shall notify EPA in writing. During Site characterization, Respondent

shall provide EPA with the following deliverables, as described in the SOW and RI/FS Workplan:

(1) Site Characterization Summary. In accordance with the schedule set forth in the EPA-approved RI/FS Workplan, Respondent shall submit to EPA a Site Characterization Summary prepared in accordance with the SOW.

(2) Remedial Investigation Report. Within sixty (60) days of receipt from EPA of the Baseline Risk Assessment described in Section IX below, Respondent shall submit to EPA a Remedial Investigation Report prepared in accordance with the SOW, RI/FS Workplan, and Sampling and Analysis Plan. If EPA disapproves of or requires revisions to the Remedial Investigation Report, in whole or in part, Respondent shall amend and submit to EPA a revised Remedial Investigation Report which is responsive to all of EPA's comments, within forty-five (45) days of receiving EPA's comments.

c. **Task III - Treatability Studies**. Respondent shall submit to EPA a memorandum analyzing whether treatability studies are required based on the information developed during the conduct of the Remedial Investigation and the basis therefor. EPA then will determine whether Respondent shall conduct treatability studies and notify Respondent of its decision in writing. If required, major components of the treatability studies include determination of the need for and scope of studies, the design of the studies, and the completion of the studies as described in the SOW. During treatability studies, Respondent shall provide EPA with the following deliverables:

(1) Identification of Candidate Technologies Memorandum. This memorandum shall be submitted in accordance with the schedule set forth in the EPA-approved RI/FS Workplan. If EPA disapproves of, or requires revisions to, the technical memorandum identifying candidate technologies, in whole or in part, Respondent shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which is responsive to all of EPA's comments within forty-five (45) days of receiving EPA's comments.

(2) Treatability Testing Workplan. Respondent shall submit to EPA a Treatability Testing Workplan, or a proposed amendment to the RI/FS Workplan, including a schedule, in accordance with the schedule set forth in the EPA-approved RI/FS Workplan. If EPA disapproves of, or requires revisions to, the Treatability Testing Workplan or the proposed amendment to the RI/FS Workplan, in whole or in part, Respondent shall amend and submit to EPA a revised Treatability Testing Workplan or amendment to the RI/FS Workplan, which is responsive to all of EPA's comments, within forty-five (45) days of receiving EPA's comments.

(3) Treatability Study Sampling and Analysis Plan. Upon the identification of the need for a separate or amended QAPP or FSP, Respondent shall submit to EPA a Treatability Study Sampling and Analysis Plan or a proposed amendment to the original QAPP or FSP, in accordance with the schedule set forth in the approved RI/FS Workplan. If EPA disapproves of, or requires revisions to, the Treatability Study Sampling and Analysis Plan or the proposed amendment to the original QAPP or FSP, in whole or in part,

Respondent shall amend and submit to EPA a revised Treatability Study Sampling and Analysis Plan or proposed amendment to the original QAPP or FSP, which is responsive to all of EPA's comments, within forty-five (45) days of receiving EPA's comments.

(4) Treatability Study Site Health and Safety Plan. Upon the identification of the need for a separate or amended Health and Safety Plan, Respondent shall submit to EPA a Treatability Study Site Health and Safety Plan or a proposed amendment to the original Site Health and Safety Plan, in accordance with the schedule set forth in the approved RI/FS Workplan.

(5) Treatability Study Evaluation Report. Respondent shall submit to EPA a Treatability Study Evaluation Report as provided in the SOW and RI/FS Workplan in accordance with the schedule set forth in the EPA-approved RI/FS Workplan. If EPA disapproves of, or requires revisions to, the Treatability Study Evaluation Report, in whole or in part, Respondent shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to all of EPA's comments within forty-five (45) days of receiving EPA's comments.

d. **Task IV - Development and Screening of Remedial Alternatives**. Respondent shall develop an appropriate range of waste management options consistent with EPA guidance documents, that will be evaluated through the development and screening of alternatives as provided in the SOW and RI/FS Workplan. During the development and screening of alternatives, Respondent shall submit

to EPA the following:

(1) Memorandum on Remedial Action Objectives. Within sixty (60) days of receipt of the Baseline Risk Assessment, Respondent shall submit a memorandum on remedial action objectives prepared in accordance with the SOW.

(2) Development and Screening of Remedial Alternatives. Respondent shall submit a report summarizing the development and screening of remedial alternatives including an alternatives array document as described in the SOW in accordance with the schedule set forth in the approved RI/FS Workplan.

e. **Task V - Detailed Analysis of Remedial Alternatives.** Respondent shall conduct a detailed analysis of remedial alternatives consistent with EPA guidance documents, as described in the SOW and RI/FS Workplan. During the detailed analysis of alternatives, Respondent shall provide EPA with the following deliverables and presentation:

(1) Comparative Analysis Technical Memorandum and Presentation to EPA. In accordance with the schedule set forth in the EPA-approved RI/FS Workplan, Respondent shall submit a technical memorandum to EPA summarizing the results of the comparative analysis performed between the remedial alternatives. If EPA disapproves of, or requires revisions to, the comparative analysis technical memorandum, Respondent shall amend and submit to EPA a revised comparative analysis technical memorandum which is responsive to all of EPA's comments within forty-five (45) days of receiving EPA's comments. Upon EPA's request, Respondent shall

make a presentation to EPA during which Respondent shall summarize the findings of the remedial investigation and remedial action objectives, and present the results of the nine criteria evaluation and comparative analysis as described in the SOW and consistent with EPA guidance documents.

(2) Feasibility Study Report. Respondent shall submit a draft Feasibility Study Report which reflects the findings in the Baseline Risk Assessment in accordance with the schedule set forth in the approved RI/FS Workplan. Respondent shall refer to Table 6-5 of the RI/FS Guidance for report content and format. If EPA disapproves of, or requires revisions to, the draft Feasibility Study Report, in whole or in part, Respondent shall amend and submit to EPA a revised Feasibility Study Report which is responsive to all of EPA's comments, within forty-five (45) days of receiving EPA's comments. The report, as amended, and the Administrative Record shall provide the basis for the Proposed Plan under CERCLA §§ 113(k) and 117(a), 42 U.S.C. §§ 9613(k) and 9617(a), by EPA and shall document the development and analysis of remedial alternatives.

23. EPA reserves the right to comment on, modify, and direct changes for all deliverables. EPA will approve or disapprove, in whole or in part, and return the initial deliverable to Respondent with written comments or requests for modifications. In the subsequent or resubmitted deliverable, Respondent shall respond to the specified deficiencies and address the information and comments from EPA. If EPA disapproves of the revised deliverable, EPA will

state with specificity the grounds for disapproval.

24. Respondent shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: RI/FS Workplan, Sampling and Analysis Plan, draft Remedial Investigation Report, Treatability Testing Workplan, Treatability Study Sampling and Analysis Plan, and the draft Feasibility Study Report. While awaiting EPA approval on these deliverables, Respondent shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Consent Order or the approved RI/FS Workplan.

25. For all remaining deliverables not enumerated in the preceding paragraph, Respondent may proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval. If Respondent has not complied with an approved Workplan or this Consent Order, or if at any time EPA deems it necessary to protect public health, welfare, or the environment, EPA may disapprove of Respondent's implementation of such tasks and may require that Respondent cease the implementation of such tasks, either temporarily or permanently, at any point during the RI/FS.

26. If Respondent amends or revises a report, plan, or other submittal upon receipt of EPA comments, and EPA subsequently disapproves of the revised submittal, or if subsequent submittals do not fully reflect EPA's directions for changes, EPA retains the right to modify the submittal, seek stipulated and statutory penalties, perform its own studies, complete the RI/FS (or any

portion of the RI/FS) pursuant to CERCLA and the NCP, and seek reimbursement from Respondent for its costs and/or seek any other appropriate relief. In the event that EPA refuses to approve a deliverable unless Respondent changes or modifies it in a manner which Respondent deems inconsistent with Respondent's best professional judgment, Respondent reserves the right to seek Dispute Resolution in accordance with Section XIX (Dispute Resolution) or pursue any other rights that it may have.

27. If EPA takes over some of the tasks but not the preparation of the RI/FS, Respondent shall incorporate and integrate information supplied by EPA into the final RI/FS report.

28. Neither the failure of EPA to expressly approve or disapprove of Respondent's submissions within a specified time period nor the absence of comments, shall be construed as approval by EPA. Except as otherwise provided herein, however, EPA will make it a goal to approve, disapprove, or provide written comments on all deliverables within sixty (60) days of receipt of such deliverables.

IX. EPA'S BASELINE RISK ASSESSMENT

29. EPA will prepare the Baseline Risk Assessment. Respondent shall support EPA in the effort by providing various information to EPA as outlined above. The major components of the Baseline Risk Assessment include contaminant identification, exposure assessment, toxicology assessment, and human health and ecological risk characterization.

30. EPA will provide, after review of Respondent's Site Characterization Summary, sufficient information concerning the baseline risks such that Respondent can begin drafting the Feasibility Study Report and the Memorandum on Remedial Action Objectives.

31. EPA will prepare a Baseline Risk Assessment report in accordance with the "Risk Assessment Guidance for Superfund," Volumes I and II, EPA's Streamlined RI/FS and Presumptive Remedy guidance documents for CERCLA Municipal Landfill Sites, and other applicable EPA guidance documents and references as listed in the SOW based on data collected by Respondent during the site characterization. EPA will release this report to the public at the same time it releases the final RI Report. Both reports will be put into the Administrative Record for the Site.

X. MODIFICATION OF THE RI/FS WORKPLAN

32. Respondent shall have the right to gather any additional data not specified or required under this Consent Order. If at any time during the RI/FS process, Respondent identifies a need for additional data to complete the Work which shall require a modification or extension of any part of the schedule, Respondent shall submit a memorandum documenting such need to the EPA Project Coordinator explaining the need for and the nature of the requested modification or extension. If EPA does not approve or disapprove of the request for modification or extension within thirty (30) days of receipt of the request, Respondent may proceed to gather such additional data and submit it to EPA for inclusion in the

administrative record.

33. In the event of conditions posing an immediate threat to human health, welfare, or the environment, Respondent shall notify EPA and the State of Missouri within twenty-four (24) hours of discovery. In the event of material unanticipated or changed circumstances at the Site, Respondent shall notify the EPA Project Coordinator by telephone within forty-eight (48) hours of discovery of such unanticipated or changed circumstances. In addition to the authorities in the NCP, if EPA determines that the immediate threat or the material unanticipated or changed circumstances warrant changes in the RI/FS Workplan, EPA may modify or amend the RI/FS Workplan in writing accordingly. If Respondent disputes EPA's modifications or amendments to the RI/FS Workplan, Respondent shall immediately submit such issue to Dispute Resolution as provided herein. Otherwise, Respondent shall perform the RI/FS Workplan as modified or amended.

34. EPA may determine that in addition to tasks defined in the initially approved RI/FS Workplan, other additional work may be necessary to accomplish the objectives of the RI/FS as set forth in Section IV (Statement of Purpose), herein. EPA may request that Respondent perform these response actions in addition to those required by the initially approved RI/FS Workplan including any approved modifications if it determines that such actions are necessary for a complete RI/FS and is consistent with the Statement of Purpose set forth in Section IV, herein. Respondent shall confirm its willingness to perform the additional work in writing

to EPA within seven (7) days of receipt of the EPA request or Respondent shall invoke dispute resolution. Subject to EPA resolution of any dispute, Respondent shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications, and schedules set forth or approved by EPA in a written modification to the RI/FS Workplan. In the event Respondent does not agree to perform the additional work and the modification is not the subject of Dispute Resolution, EPA reserves the right to conduct the work itself, to seek reimbursement from Respondent, and/or to seek any other appropriate relief.

XI. QUALITY ASSURANCE

35. Respondent shall use its best efforts to assure that work performed, samples taken, and analyses conducted pursuant to this Consent Order conform to the requirements of the SOW, the QAPP, and all guidances identified herein. Respondent shall use its best efforts to assure that field personnel used by Respondent are properly trained in the use of field equipment and in chain of custody procedures, as applicable.

XII. FINAL RI/FS; PROPOSED PLAN; PUBLIC COMMENT; RECORD OF DECISION; ADMINISTRATIVE RECORD

36. EPA retains the responsibility for the release to the public of the RI/FS Report as well as the preparation and release to the public of the Proposed Plan and ROD.

37. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondent shall submit to EPA documents developed during the course of the RI/FS

upon which selection of the response action may be based. Respondent shall provide copies of plans, task memoranda (including documentation of field modifications, if any), recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. To the extent not in EPA's possession at Region VII, Respondent additionally must submit copies of any previous studies in Respondent's possession or control conducted under state, local, or other federal authorities relating to selection of a response action for the Site, and all communications between Respondent and state, local, or other federal authorities concerning selection of a response action for the Site. At EPA's discretion, Respondent may establish a community information repository at, or near, the Site to house a copy of the administrative record.

XIII. PROGRESS REPORTS

38. Respondent shall make presentations at and participate in meetings at the request of EPA during the initiation, conduct, and completion of the Work. In addition to discussion of the technical aspects of the Work, topics will include anticipated problems or new issues. Meetings will be scheduled at EPA's discretion. When practicable, however, EPA will give Respondent five (5) days advance written notice of any such meeting or presentation.

39. In addition to the deliverables set forth in this Consent Order, Respondent shall provide to EPA monthly progress reports by the 10th day of each following month beginning the first full month after the effective date of this Consent Order. At a minimum, with

respect to the preceding month, these progress reports shall: (1) describe the actions which have been taken to comply with this Consent Order during that month; (2) include all validated results of sampling and tests and all other validated data relating to this Consent Order and received by Respondent during the reporting period; (3) describe work planned for the next two months with schedules relating such work to the overall project schedule for RI/FS completion; and (4) describe all material problems encountered and any anticipated material problems, any actual or anticipated material delays, and solutions developed and implemented to address any actual or anticipated material problems or delays.

XIV. SAMPLING AND DATA ANALYSIS

40. All validated analytical data, including results of sampling, tests, modeling, or other data generated by Respondent or on Respondent's behalf, pursuant to the requirements of this Consent Order shall be submitted to EPA in the subsequent monthly progress report as described in Section XIII (Progress Reports) of this Consent Order. EPA will make available to Respondent validated data generated by EPA relating to the Site unless it is exempt from disclosure by federal or state laws or regulations.

41. Respondent shall orally notify EPA at least ten (10) days prior to conducting significant field events as described in the SOW, RI/FS Workplan, or Sampling and Analysis Plan. Upon EPA's request, Respondent shall allow EPA or its authorized representatives to take split or duplicate samples of any samples

collected by Respondent in implementing this Consent Order.

42. Respondent may assert a business confidentiality claim covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9607(e)(7), and 40 C.F.R. § 2.203(b). This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public without further notice to Respondent. Respondent agrees not to assert confidentiality claims with respect to any data collected pursuant to this Consent Order and related to Site conditions, sampling, or monitoring.

43. By entering into this Consent Order, Respondent waives any objections to any data gathered, generated, or evaluated by EPA, the State of Missouri, or Respondent in the performance or oversight of the work that has been verified according to the quality assurance/quality control ("QA/QC") procedures required by the Consent Order or any EPA approved workplans or sampling and analysis plans relating to this Consent Order. If Respondent objects to any other data relating to the RI/FS, Respondent shall submit to EPA a report that identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be

submitted to EPA within fifteen (15) days of the monthly progress report containing the data.

44. To the extent practicable, EPA orally will notify Respondent at least five (5) days prior to conducting any independent field activities relating to the Site during the course of the performance of the Work. At Respondent's oral or written request, EPA will permit Respondent's representative to be present during any such activities and shall allow split or duplicate samples to be taken by Respondent of any samples collected by EPA relating to the Site. All samples collected by EPA will be taken, handled, and analyzed in accordance with the procedures specified in the FSP, to the extent applicable, and the QAPP. EPA will assure that field personnel used by EPA for such sample collection are properly trained in the use of field equipment, in chain of custody procedures, and as EPA deems necessary in accordance with the Site Health and Safety Plan.

XV. ACCESS

45. Commencing upon the effective date of this Consent Order, Respondent agrees to provide EPA and its representatives, including its contractors, access at all times to the Site and any other property to which access is required for the implementation of this Consent Order, to the extent access to the property is controlled by Respondent, for the purposes of conducting any activity related to this Consent Order including, but not limited to:

a. Monitoring the Work;

b. Verifying any data or information submitted to EPA;

c. Conducting investigations relating to contamination at or near the Site;

d. Obtaining samples;

e. Assessing the need for, planning, or implementing additional response actions at or near the Site;

f. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Respondent or its agents; and

g. Assessing Respondent's compliance with this Consent Order.

46. Prior to entering the Site, EPA will provide, when practicable, Respondent's Project Coordinator with the credentials or other written notice of all EPA personnel and/or representatives authorized to enter the Site pursuant to this Section. To the extent practicable, EPA and its representatives will comply with the Site Health and Safety Plan while on Site.

47. To the extent that the Site or any other property to which access is required for the implementation of this Consent Order is owned or controlled by persons other than Respondent, Respondent shall use best efforts to secure from such persons access for Respondent, as well as for EPA and its representatives, including, but not limited to, its contractors, as necessary to effectuate this Consent Order. If any access required to complete the Work is not obtained within thirty (30) days of the effective date of this Consent Order, or within thirty (30) days of the date EPA notifies Respondent in writing that additional access beyond

that previously secured is necessary, Respondent shall promptly notify EPA, and shall include in that notification a summary of the steps Respondent have taken to attempt to obtain access. EPA may, as it deems appropriate, assist Respondent in obtaining access. Respondent shall reimburse EPA, in accordance with the procedures in Section XXII (Reimbursement of EPA's Response and Oversight Costs), for all costs incurred by EPA in obtaining access.

48. Notwithstanding any provision of this Consent Order, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992k, and any other applicable statutes or regulations.

XVI. PROJECT COORDINATORS

49. All documents and correspondence which must be submitted pursuant to this Consent Order shall be sent by certified mail, return receipt requested, by overnight delivery service, or hand-delivered to the following addressees or to any other addressees which Respondent and EPA designate in writing:

a. Documents to be submitted to EPA shall be sent in triplicate to:

Steven Kinser
U.S. Environmental Protection Agency
Region VII
WSTM/SPFD/REML
726 Minnesota Avenue
Kansas City, Kansas 66101

b. Documents to be submitted to Respondent should be sent to:

Michael D. Hockley, Esq.
Spencer Fane Britt & Browne
1400 Commerce Bank Building
1000 Walnut Street
Kansas City, Missouri 64106

With a copy by mail to:

Doug Borro
Laidlaw Waste Systems (Bridgeton), Inc.
3221 N. Service Road
P.O. Box 5028
Burlington, Ontario
Canada L7R 3Y8

Unless otherwise specified, any notices or submissions shall be deemed delivered on the date placed in the United States mail, delivered to an overnight service, or hand-delivered, as indicated on the certificate of service prepared by the sender. If a response deadline is triggered by receipt of a notice, however, then such notice, for purposes of calculating such deadline, shall be deemed received upon actual receipt.

50. On or before the effective date of this Consent Order, EPA and Respondent shall each designate their own Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. To the maximum extent possible, communications between Respondent and EPA shall be directed between the Project Coordinators by mail with copies to such other persons as EPA and Respondent may respectively designate. Communications include, but are not limited to, all documents, reports, approvals, and other correspondence submitted under this Consent Order.

51. EPA and Respondent each have the right to change their respective Project Coordinator. The other party must be notified in writing at least ten (10) days prior to any such change.

52. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator shall have authority consistent with the NCP to halt any work required by this Consent Order and to take any necessary response action when EPA determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the Site shall not be cause for the stoppage or delay of work.

XVII. OTHER APPLICABLE LAWS

53. Respondent shall comply with all applicable laws when performing the RI/FS. No local, state, or federal permit shall be required for any portion of any action conducted entirely on-Site including studies where such action is selected and carried out in compliance with Section 121 of CERCLA, 42 U.S.C. § 9621. For purposes of this Section, the term "on-Site" shall mean the Site and all suitable areas in very close proximity to the contamination necessary for implementation of activities pursuant to this Consent Order.

XVIII. RECORD PRESERVATION

54. One complete set of all records and documents in Respondent's possession that relate to this Consent Order shall be preserved while this Consent Order is in effect and for a minimum

of six (6) years after commencement of construction of any remedial action. Respondent shall acquire and retain copies of all non-privileged documents that relate to this Consent Order that are in the possession of their employees, agents, accountants, contractors, or attorneys. At the conclusion of this six (6) year period, Respondent shall notify EPA at least ninety (90) days prior to the destruction of any such non-privileged records or documents, and, upon EPA's request, Respondent shall deliver any such records or documents to EPA.

XIX. DISPUTE RESOLUTION

55. Any disputes concerning activities or deliverables required under this Consent Order shall be resolved as follows: If Respondent objects to any EPA notice of disapproval or requirement made pursuant to this Consent Order, Respondent shall notify EPA's Project Coordinator in writing of its objections within fourteen (14) days of receipt of the disapproval notice or requirement. Respondent's written objections shall define the dispute, state the basis of Respondent's objections, and be sent certified mail, return receipt requested. Within fourteen (14) days of receipt of Respondent's objection, EPA will respond to Respondent in writing, specifically addressing the points raised by Respondent and identifying points of agreement or disagreement. EPA and Respondent then have an additional fourteen (14) days to reach agreement.

56. If agreement is not reached within the final fourteen (14) day period referenced above, Respondent may request a

determination by the Director of EPA Region VII's Superfund Division, who shall resolve the dispute and provide a written statement of his decision to Respondent. The Division Director's determination is EPA's final decision. Respondent shall proceed in accordance with EPA's final decision regarding the matter in dispute regardless of whether Respondent agrees with the decision. If Respondent does not agree to perform, or does not perform the work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the work itself, to seek reimbursement from Respondent, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief.

57. No action, decision, or directive made by EPA, including without limitation the Director of EPA Region VII's Superfund Division pursuant to this Consent Order shall constitute a final agency action giving rise to any rights to judicial review prior to EPA's initiation of judicial action to compel Respondent's compliance with this Consent Order. Except as otherwise provided herein, Respondent reserves any rights that it may have to seek any appropriate relief to the extent available by applicable law.

58. Respondent is not relieved of its obligation to perform and conduct activities and submit deliverables in accordance with the schedule set forth in this Consent Order or the RI/FS Workplan while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay stipulated penalties under this Consent Order. If, however, Respondent prevails in the dispute,

deadlines directly affected by the matters in dispute shall be extended for a period of time equal to the time taken to resolve the dispute under the procedures of this Section, plus reasonable time for remobilization, as determined by EPA.

XX. DELAY IN PERFORMANCE/STIPULATED PENALTIES

59. Respondent shall be liable for stipulated penalties in the amounts set forth in paragraphs 60 and 61 to EPA for failure to comply with the requirements of this Consent Order specified below, unless excused pursuant to Section XXI (Force Majeure/Excusable Delay). "Compliance" by Respondent shall include completion of the activities under this Consent Order or any workplan or other plan approved under this Consent Order identified below in accordance with all applicable requirements of law, this Consent Order, the SOW, and any plans or other documents approved by EPA pursuant to this Consent Order and within the specified time schedules established by and approved under this Consent Order.

60. If Respondent does not submit the deliverable items listed below by the deadlines set forth in this Consent Order or a workplan, the following stipulated penalties shall be payable per day by Respondent:

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

The penalties in this paragraph shall apply to the following deliverable items:

a. The draft and any revised workplan.

b. The draft and any revised sampling and analysis plan.

c. The draft and any revised Remedial Investigation Report.

d. The draft and any revised Feasibility Study Report.

61. If Respondent does not submit the deliverable items listed below by the deadlines set forth in this Consent Order or a workplan, the following stipulated penalties shall be payable per day by Respondent:

Penalty Per Violation Per Day	Period of Noncompliance
$ 250	1st through 14th day
$ 500	15th through 30th day
$ 1,000	31st day and beyond.

The penalties in this paragraph shall apply to the following deliverable items as well as any other deliverables not specifically listed in this Section:

a. Site Health and Safety Plan.

b. Technical memorandum on modeling of Site characteristics.

c. Site Characterization Summary.

d. Evaluation of Need for Treatability Studies technical memorandum.[1]

[1] Other reports relating to treatability studies will be submitted only if EPA determines that such studies are necessary after reviewing Respondent's technical memorandum evaluating the need for Treatability Studies.

e. Treatability Study Site Health and Safety Plan, if required by EPA.

f. Treatability Study Evaluation Report, if required by EPA.

g. Technical memorandum entitled Refined Remedial Action Objectives.

h. Report entitled Development and Screening of Remedial Alternatives.

i. Comparative analysis technical memorandum.

j. Monthly progress reports.

62. Except as otherwise provided herein, all penalties shall begin to accrue on the day after 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. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Order. For violations not based on timeliness, stipulated penalties shall not begin to accrue until after Respondent has had the opportunity to revise the submission to respond to EPA's written comments. If any revised submission fails to respond to EPA's comments and/or remedy the specified deficiencies and EPA deems such failure to constitute a violation warranting stipulated penalties, then EPA will provide Respondent with written notice of such violation. In such case, stipulated penalties shall accrue from the date of receipt by Respondent of such notice.

63. Following EPA's determination that Respondent has failed to comply with a requirement of this Consent Order, EPA will

provide Respondent with written notification of same and describe the noncompliance. This notice will also indicate the amount of penalties due and whether the penalties continue to accrue. Except for violations not based on timeliness, penalties shall accrue as provided in the proceeding paragraph regardless of whether EPA has notified Respondent of a violation.

64. All penalties owed to the EPA under this Section shall be due and payable within thirty (30) days of Respondent's receipt from EPA of a notification of noncompliance, unless Respondent invokes the Dispute Resolution procedures set forth in Section XIX of this Consent Order. Respondent shall pay interest on the unpaid balance, which shall begin to accrue at the end of the thirty (30) day period at the rate established by the Department of Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13. Respondent shall further pay a handling charge of one percent (1%), to be assessed at the end of each thirty-day period, and a six percent (6%) per annum penalty charge, to be assessed if the penalty is not paid in full within ninety (90) days after it is due. All payments under this Section shall be paid by certified check made payable to "EPA Hazardous Substance Superfund," and shall be mailed to:

Mellon Bank
Attn: Superfund Accounting
EPA Region VII
(Comptroller Branch)
Post Office Box 360748M
Pittsburgh, PA 15251

65. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to EPA's Project Coordinator as set forth in Section XVI of this Consent Order.

66. Neither the filing of a request to resolve a dispute nor the payment of penalties shall alter in any way Respondent's obligation to complete the performance required hereunder.

67. Respondent may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures set forth in Section XIX of this Consent Order. Penalties shall accrue but need not be paid during the dispute resolution period.

68. If Respondent fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as late charges and interest. Respondent shall pay interest on the unpaid balance, which shall begin to accrue at the end of the thirty day period at the rate established pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13. Except as noted below, however, nothing in this Section shall be construed as prohibiting, altering, or in any way limiting EPA's ability to seek any other remedies or sanctions available by virtue of Respondent's violation of this Consent Order or of the statutes and regulations upon which it is based. Provided, however, EPA will be precluded from seeking other judicial or administrative penalties for those violations specified in this Section unless Respondent fails to pay penalties assessed pursuant to this Section.

XXI. FORCE MAJEURE/EXCUSABLE DELAY

69. Respondent shall perform the requirements of this Consent Order within the time limits set forth herein, unless the performance is prevented or delayed by events which constitute a force majeure or excusable delay. A force majeure or excusable

delay is defined as any event arising from causes not foreseeable and beyond the reasonable control of Respondent, including its consultants and contractors, which could not be overcome by Respondent's best efforts to avoid the delay and which delays or prevents performance by a date required by this Consent Order. Such events do not include unanticipated or increased costs of performance or changed economic circumstances.

70. If any event occurs or has occurred that may delay the performance of any material obligation under this Consent Order, whether or not caused by a force majeure event, Respondent shall notify by telephone EPA's Project Coordinator or, in his or her absence, the Director of EPA Region VII's Superfund Division, within forty-eight (48) hours of when Respondent knew or should have known that the event might cause a delay. Within ten (10) business days thereafter, Respondent shall provide in writing the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and a statement as to whether, in Respondent's opinion, such event may cause or contribute to an endangerment to public health, welfare or the environment. Respondent shall exercise best efforts to avoid or minimize any delay and any effects of a delay. If Respondent is late in complying with the notice provision of this Section, EPA, in its sole discretion, may determine that such failure constitutes a waiver of Respondent's right to assert force majeure or excusable

delay as a defense for any resulting noncompliance with the requirements of this Order that occur prior to the date notice of the claimed force majeure or excusable delay ultimately is provided to EPA by Respondent.

71. If EPA agrees that the delay or anticipated delay is attributable to a force majeure or excusable delay, the time for performance of the obligations under this Consent Order that are directly 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 obligation directly affected by the force majeure event shall not, of itself, extend the time for performance of any subsequent obligation.

72. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, or does not agree with Respondent on the length of the extension, the issue shall be subject to the dispute resolution procedures set forth in Section XIX (Dispute Resolution) of this Consent Order. In any such proceeding, to qualify for a force majeure defense, Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondent did exercise, or is exercising, due diligence by using its best efforts to avoid and mitigate the effects of the delay and that Respondent complied with the requirements of paragraph 70 above. Should Respondent carry this burden, the delay at issue shall be deemed

not to be a violation of the affected obligation of this Consent Order.

XXII. REIMBURSEMENT OF EPA'S RESPONSE AND OVERSIGHT COSTS

73. Respondent agrees to pay to EPA $12,946.33 for past response costs incurred by EPA with respect to the Site prior to December 1, 1994. Such payment shall be due to EPA within sixty (60) days of Respondent's receipt of the first periodic accounting of EPA's response and oversight costs pursuant to paragraph 74, below. Interest at the rate specified for interest on investments for the Hazardous Substances Superfund shall begin to accrue on the effective date of this Consent Order and shall continue to accrue through the date of payment.

74. Beginning no earlier than nine (9) months after the effective date of this Consent Order, EPA will periodically submit to Respondent an accounting of all response costs, including oversight costs, incurred by EPA after November 30, 1994, with respect to this Consent Order. Response costs may include, but are not limited to, costs incurred by EPA in overseeing Respondent's implementation of the requirements of this Consent Order and activities performed by EPA relating to this Consent Order, and any costs incurred while assisting Respondent in obtaining access. Costs shall include all direct and indirect costs including, but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, Site visits,

discussions regarding disputes that may arise as a result of this Consent Order, review and approval or disapproval of reports, and costs of redoing any of Respondent's tasks. Any necessary summaries including, but not limited to, EPA's certified Agency Financial Management System summary data ("SPUR Reports"), or such other summary as certified by EPA, shall serve as a basis for payment demands.

75. Respondent shall, within sixty (60) days of receipt of each accounting, remit a certified or cashier's check for the amount of those costs. Interest shall accrue from the later of the date payment of a specified amount demanded in writing is due, or the date of the expenditure. The interest rate shall be the same rate as is specified for interest on investments for the Hazardous Substances Superfund.

76. All payments to EPA under this Section shall be made by certified or cashier's check made payable to "EPA Hazardous Substance Superfund" and shall include the Site name, the EPA Site identification number 6PG, and the EPA Docket Number assigned to this matter, and shall be remitted to:

Mellon Bank
Attn: Superfund Accounting
EPA Region VII
(Comptroller Branch)
Post Office Box 360748M
Pittsburgh, PA 15251

77. A copy of the check shall be sent simultaneously to EPA's Project Coordinator.

78. Respondent agrees to limit any disputes concerning costs to accounting errors and the inclusion of costs outside the scope

of this Consent Order, or costs that are inconsistent with the NCP. Respondent shall identify any contested costs and the basis of its objection. All undisputed costs shall be remitted by Respondent in accordance with the time frame set forth above. Disputed costs shall be paid by Respondent into an escrow account while the dispute is pending. Respondent bears the burden of establishing an EPA accounting error or the inclusion of costs outside the scope of this Consent Order or costs that are inconsistent with the NCP.

XXIII. RESERVATIONS OF RIGHTS

79. EPA reserves the right to bring an action against Respondent pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607, for the recovery of all response costs including oversight costs incurred by EPA at the Site that are not reimbursed by Respondent, any costs incurred in the event that EPA performs the RI/FS or any part thereof, and any future costs incurred by EPA in connection with response activities conducted under CERCLA at the Site. Respondent reserves all rights it may have to oppose and defend against such claims and actions and to assert any and all claims it may have against EPA or any person or government agency.

80. EPA reserves the right to bring an action against Respondent to enforce the requirements of this Consent Order, and to seek penalties and punitive damages pursuant to CERCLA. To the extent that the stipulated penalties provisions of Section XX (Delay in Performance/Stipulated Penalties) apply to violations of a particular requirement of this Order, EPA will not seek statutory penalties unless Respondent fails or refuses to pay stipulated

penalties assessed for such a violation.

81. Except as specifically provided in this Consent Order, (1) each party reserves all rights, remedies, and defenses each may have, and (2) 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, on, at, or from the Site. Further, nothing herein shall prevent EPA from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

82. Following satisfaction of the requirements of this Consent Order, Respondent shall have resolved its liability to EPA for the work performed by Respondent pursuant to this Consent Order. Respondent is not released from liability, if any, for any response actions taken beyond the scope of this Consent Order including, but not limited to, removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

XXIV. RESPONDENT'S DISCLAIMER

83. By signing this Consent Order and taking actions under this Consent Order, Respondent does not admit EPA's Findings of Fact and Conclusions of Law. Furthermore, the participation of Respondent in this Consent Order shall not be considered an admission of liability and is not admissible in evidence against

Respondent in any judicial or administrative proceeding other than a proceeding by the United States on behalf of EPA to enforce this Consent Order or a judgment relating to it. Respondent retains its rights to assert claims against other potentially responsible parties at the Site. Except as otherwise specifically provided in this Consent Order, nothing contained herein shall preclude Respondent from bringing any action otherwise available against any "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21). Respondent agrees, however, not to contest the validity or terms of this Consent Order or the procedures underlying or relating to it in any action brought by the United States on behalf of EPA to enforce its terms.

XXV. OTHER CLAIMS

84. By entering into this Consent Order, Respondent waives any right to seek reimbursement pursuant to Section 106(b) of CERCLA, 42 U.S.C. § 9606(b) for costs incurred by Respondent relating to this Consent Order. Respondent also waives any right to present a claim under Section 111 or 112 of CERCLA, 42 U.S.C. §§ 9611 and 9612 for costs incurred by Respondent relating to this Consent Order. This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2). Injuries or damages resulting from acts or omissions of the EPA, its agents, employees, or other persons acting on its behalf on property owned or controlled or operated by Respondent shall be subject to the procedures of the Federal Tort Claims Act of 1949, as amended, 28 U.S.C. § 2671, et seq. ("FTCA").

Except for claims subject to the procedures of the FTCA, Respondent further waives all other statutory and common law claims against EPA including, but not limited to, contribution and counterclaims relating to or arising out of the conduct of the Work.

85. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any party not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release or disposal of any hazardous substance, pollutant, or contaminant found at, taken to, or taken from the Site.

XXVI. FINANCIAL ASSURANCE AND INDEMNIFICATION

86. Within thirty (30) days of the effective date of this Consent Order Respondent shall submit to EPA a cost estimate for implementation of this Consent Order. Said cost estimate shall include direct and indirect capital costs, operation and maintenance costs and any other costs attributable to implementation of this Consent Order.

87. Within thirty (30) days after submitting the cost estimate referred to above, Respondent shall obtain an Irrevocable Letter of Credit in the amount of the cost estimate, naming EPA as the Beneficiary, and provide a copy of such letter of credit to EPA within ten (10) days of its effective date.

88. If Respondent fails to complete the Work, EPA may complete the Work utilizing the proceeds of the foregoing financial

assurance.

89. Respondent agrees to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondent, its employees, agents, servants, receivers, successors, or assignees, or any persons including, but not limited to, firms, corporations, subsidiaries and contractors in carrying out activities under this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondent in carrying out activities under this Consent Order.

90. Respondent shall be under no duty, however, to indemnify the EPA or the United States for claims or causes of action arising from or on account of negligent, willful, or intentional acts or omissions of the EPA, its officers, agents, employees, or any other person acting on its behalf. Nothing herein is intended to or shall be construed as extending the liability of the United States Government or any agency or authorized representative thereof beyond that provided for under federal law.

XXVII. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

91. The effective date of this Consent Order shall be the date that it is signed by EPA.

92. This Consent Order may be amended by mutual agreement of EPA and Respondent. Amendments shall be in writing and shall be effective when signed by EPA.

93. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules and any other writing submitted by Respondent will be construed as relieving Respondent of its obligation to obtain such formal approval as may be required by this Consent Order. Any deliverables, plans, technical memoranda, reports (other than progress reports) specifications, schedules and attachments required by this Consent Order are, upon approval by EPA, incorporated into this Consent Order.

XXVIII. TERMINATION AND SATISFACTION

94. This Consent Order shall terminate when Respondent demonstrates in writing and certifies to the satisfaction of EPA that all activities required under this Consent Order including any additional work, payment of past costs, response and oversight costs, and any stipulated penalties demanded by EPA have been performed and EPA has approved the certification. EPA will make it a goal to notify Respondent within sixty (60) days of receipt of such certification whether it has approved or disapproved the certification. In the event EPA disapproves the certification, it will specify in writing the reasons therefore. If EPA disapproves the certification or EPA fails to respond to the certification within sixty (60) days, Respondent may invoke the provisions of Section XIX (Dispute Resolution). This notice shall not, however, terminate Respondent's obligation to comply with Sections XVII (Other Applicable Laws), XVIII (Record Preservation), XXII (Reimbursement of EPA's Response and Oversight Costs), and XXIII

(Reservations of Rights) of this Consent Order.

95. The certification shall be signed by a responsible official representing Respondent. Such representative shall make the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate, and complete." For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

For Laidlaw Waste Systems (Bridgeton), Inc., a Missouri corporation:

LAIDLAW WASTE SYSTEMS (BRIDGETON), INC.,
a Missouri corporation

December 9, 1994

Secretary

For the United States Environmental Protection Agency:

December 12, 1994

David A. Hoefer
Assistant Regional Counsel
U.S. Environmental Protection Agency

December 14, 1994

Michael J. Sanderson
Acting Director
Waste Management Division
U.S. Environmental Protection Agency

ATTACHMENT II

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
STATEMENT OF WORK
WEST LAKE LANDFILL OU-2

TABLE OF CONTENTS

REMEDIAL INVESTIGATION/FEASIBILITY STUDY STATEMENT OF WORK WEST LAKE LANDFILL OU-2

1.0 INTRODUCTION

This document is the Statement of Work ("SOW") incorporated by reference in the United States Environmental Protection Agency ("EPA") - West Lake Landfill Administrative Order on Consent ("AOC") for Remedial Investigation/Feasibility Study ("RI/FS") Operable Unit Number 2, EPA Docket No. VII-94-F-0025, for the conduct of an RI/FS at the West Lake Landfill, National Priorities List ("NPL") site located in Bridgeton, Missouri. The purpose of the RI/FS is to investigate the nature and extent of contamination, assess the potential risk to human health and the environment presented by such contamination, and develop and evaluate potential remedial alternatives at the Site. The definition of "Site" as used herein, shall be the same as in the AOC. The terms "contamination", "contaminant", "waste", etc., as used herein refer to any hazardous substance within the meaning of Section 101(14) and 101(33) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9601(14). The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies, as needed.

Respondent shall conduct this RI/FS (except for the Baseline Risk Assessment component) and shall produce a draft RI and FS report that are in accordance with this SOW, the Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, October 1988), and any other guidance that EPA uses in conducting a RI/FS, as well as any additional requirements in the AOC. A list of primary guidance documents is presented in Section 8.0 of this SOW. The RI/FS Guidance describes the report format and the required report content. Respondent shall furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the AOC.

Upon the completion of the RI/FS, EPA will be responsible for the selection of a Site remedy and will document this selection in a Record of Decision. The remedial action alternative selected by EPA will be consistent with the streamlined RI/FS guidance for CERCLA Municipal Landfill Sites and the Presumptive Remedy for CERCLA Municipal Landfill Sites guidance and will be selected to be protective of human health and the environment, will be in

compliance with, or include a waiver of, applicable or relevant and appropriate requirements typically referenced in streamlined RI/FS projects, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable.

As specified in Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), EPA will provide oversight of Respondent's activities throughout the RI/FS. Respondent shall support EPA's initiation and conduct of activities related to the implementation of oversight activities.

2.0 TASK I - SCOPING

Scoping is the initial planning process of the RI/FS and is initiated by EPA. During scoping, the Site-specific objectives of the RI/FS are determined by EPA. Respondent shall document the specific project scope in a workplan. Because the work required to perform a RI/FS is not fully known at the onset, it may be phased in accordance with a site's complexity and the amount of available information. The number of phases and precise activities contained in each phase shall be determined during Project Scoping and described in detail in the RI Workplan. At present the following phases are envisioned.

1. Phase I: This phase shall consist of the implementation of Tasks I through V. These tasks are discussed in detail in the following subsections

2. Phase II: Based on the results of Phase I, Phase II activities may consist of: performing additional RI activities as needed to refine the Site conceptual models or respond to emergent issues; implementing treatability studies, as needed; and refining the FS, as needed. The exact nature or need of these activities is not known at this time.

The phases may overlap depending upon the nature and amount of interaction between the RI and FS activities. It may be necessary to modify the RI/FS Workplan during the RI/FS to satisfy the objectives of the study. EPA recognizes that Operable Unit 1 activities being conducted at the site may yield regional and local data which can be referenced in Operable Unit 2 activities. It is EPA's goal to eliminate duplication of effort between the two Operable Units wherever practicable.

When scoping the specific aspects of a project, Respondent shall meet with EPA to discuss project planning decisions and special concerns associated with the Site. The following activities shall be performed by Respondent as a function of the project planning process.

2.1 Site Background

Respondent shall gather and analyze Site background information and shall conduct a Site visit to assist in planning the scope of the RI/FS.

2.1.1 Collect And Analyze Existing Data And Document The Need For Additional Data

Before planning RI/FS activities, all Site data shall be compiled and reviewed by Respondent. Specifically, this shall include presently available data relating to the varieties and quantities of hazardous substances at the Site, and past disposal practices. This shall also include results from any previous chemical sampling events and hydraulic monitoring that have been conducted, as well as available Site information and analytical data pertaining to the Remedial Investigation/Feasibility Study presently being conducted for Operable Unit No. 1 (EPA Docket No. VII-93-F-0005). This information shall be utilized in determining additional data needed to characterize the Site, better defining potential applicable or relevant and appropriate requirements ("ARARs"), and developing a range of preliminary identified remedial alternatives. Data Quality Objectives ("DQOs") shall be established, subject to EPA approval, specifying the usefulness of existing data. Decisions on data necessary for performance of the Baseline Risk Assessment and DQOs shall be made by EPA with consideration of comments by Respondent.

Respondent shall review aerial photographs of the Site to help characterize drainage and surficial soils in the vicinity of the Site and to evaluate berm construction and waste disposal practices conducted at the landfill.

2.1.2 Site Visit

Respondent shall conduct a Site visit during the project scoping phase to assist in developing a conceptual site model of the physical and chemical framework for the Site, sources and areas of contamination, as well as potential exposure pathways and receptors at the Site. During the Site visit Respondent should observe the Site's physiography, hydrology,

geology, and demographics, as well as natural resource, ecological, and cultural features. This information shall be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

2.2 Project Planning

Once Respondent has collected and analyzed existing data and conducted a Site visit, the specific project scope shall be planned. Project planning activities include those tasks described below as well as identifying data needs, developing a workplan, designing a data collection program, and identifying health and safety protocols. Respondent shall meet with EPA regarding the following activities and before drafting the scoping deliverables referenced in the following sections.

2.2.1 Develop A Conceptual Site Model

Information on the physical and chemical framework for the Site, potential waste sources, potential contaminant migration and exposure pathways, and receptors at the Site shall be used to develop and be included in a Conceptual Site Model and to evaluate potential risks to human health and the environment. The Conceptual Site Model shall provide the basis for selecting sampling locations and the identification of potential remedial technologies.

The characteristics of landfill design, landfill expansions, waste disposal activities, engineering control systems, leachate monitoring, leachate collection, gas collection, berm construction, soil capping, and refuse thickness shall be reviewed, as appropriate, evaluated as part of the scoping process, and utilized in the preparation of the Conceptual Site Model during scoping meetings and documented in the meeting minutes.

2.2.2 Refine And Document Preliminary Remedial Action Objectives And Alternatives

Once existing Site information has been analyzed and an understanding of the potential Site risks has been developed, Respondent shall identify potential remedial action objectives consistent with applicable EPA guidance, including the streamlined RI/FS and presumptive remedy guidances for CERCLA Municipal Landfill Sites for each contaminated medium and a preliminary range of remedial action alternatives and

associated technologies. The preliminary remedial action objectives and associated technologies along with the Conceptual Site Model shall be presented in scoping meeting minutes, with EPA participation.

2.2.3 Document The Need For Treatability Studies

If remedial actions involving treatment have been identified by Respondent or EPA, treatability studies shall be required except where Respondent can demonstrate to EPA's satisfaction that they are not needed.

2.2.4 Begin Preliminary Identification of Potential ARARs

Respondent shall conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific, and action-specific) to assist in the refinement of remedial action objectives, and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification shall continue as Site conditions, contaminants, and remedial action alternatives are better defined.

2.3 Scoping Deliverables

At the conclusion of the project planning phase, Respondent shall submit the scoping meeting minutes identifying the preliminary remedial action objectives and presenting the Conceptual Site Model, a RI/FS Workplan, a Sampling and Analysis Plan, and a Site Health and Safety Plan to EPA. The RI/FS Workplan and Sampling and Analysis Plan must be reviewed and approved by EPA prior to the initiation of field activities.

2.3.1 RI/FS Workplan

A workplan entitled RI/FS Workplan, documenting the decisions and evaluations completed during the scoping process, shall be submitted to EPA for review and approval. The RI/FS Workplan shall be developed in conjunction with the Sampling and Analysis Plan and Health and Safety Plan. The RI/FS Workplan shall include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. In addition, the RI/FS Workplan shall include the rationale for performing the activities. The RI/FS Workplan shall recognize EPA's preparation of the baseline risk assessment.

Specifically, the RI/FS Workplan shall state the objectives of the RI/FS. It shall include a background summary setting forth a description of the Site including the geographic location and Site management; to the extent possible, a description of physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the history and a description of previous activities that have been conducted by local, state, Federal, or private parties; and a summary of existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media in the vicinity of the Site.

In addition, the RI/FS Workplan shall include a preliminary identification of remedial alternatives consistent with applicable EPA guidance, including the streamlined RI/FS and presumptive remedy guidances for CERCLA Municipal Landfill Sites and data needs for evaluation of remedial alternatives. It shall include a process for and manner of identifying Federal and state ARARs (chemical-specific, location-specific, and action-specific). The RI/FS Workplan shall present a detailed description of the tasks to be performed; information needed from each task; and a description of the work products that shall be submitted to EPA, as set forth in the remainder of this SOW; schedule; project management plan; data management plan; progress reports; meetings; and presentations.

Because of the iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. If any additional data requirements are identified, Respondent shall inform and propose the additional data requirements in a technical memorandum to EPA for review and approval. Respondent is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

2.3.2 Sampling and Analysis Plan

A plan entitled Sampling and Analysis Plan ("SAP") shall be submitted to EPA for review and approval. It shall set forth plans and procedures to be followed during implementation of the RI/FS. Sampling and analysis shall be conducted in accordance with technically acceptable protocols that meet DQOs. The SAP consists of a Field Sampling Plan ("FSP") and a Quality Assurance Project Plan ("QAPP").

The FSP shall define in detail the sampling and data-gathering methods that shall be used in performing the RI/FS. It shall include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control ("QA/QC") protocols that shall be used to achieve the desired DQOs. In addition, the QAPP shall address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. Respondent shall demonstrate, in advance, to EPA's satisfaction, that each laboratory it uses is qualified to conduct the proposed work. The laboratory shall have and follow a QA program approved by EPA. If a laboratory not in the Contract Laboratory Program ("CLP") is selected, methods consistent with CLP methods that would be used for the purposes proposed and QA/QC procedures approved by EPA shall be used. Respondent shall provide assurances that EPA has access to laboratory personnel; equipment; and project records for sample collection, transportation and analysis for the purpose of QA/QC review.

2.3.3 Site Health and Safety Plan

A plan entitled Site Health and Safety Plan, shall be prepared in accordance with OSHA regulations and protocols and submitted to EPA for review. The plan shall include a description of the potential physical and chemical risks present; a description of monitoring and personal protective equipment; medical monitoring; and Site control. Field personnel shall conform to regulatory training requirements as applicable.

3.0 TASK II - SITE CHARACTERIZATION

As part of the RI, Respondent shall perform the activities described in this Task, including the preparation of a Site Characterization Summary Report and a RI Report. The overall objective of Site characterization is to describe areas of the Site that may pose a threat to human health or the environment. This is accomplished by first determining the Site's physiography, geology, and hydrology. Surface and subsurface pathways of migration shall be defined. Respondent must identify the sources of contamination; and define the nature, extent, and volume of the sources of contamination, including their physical and chemical character as well as their concentrations at incremental locations to background in the affected media. Respondent shall also investigate the extent of migration of contamination as well as its volume and any

changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site. Using this information, contaminant fate and transport is then determined and projected.

During this phase of the RI/FS, the RI/FS Workplan, SAP, and Site Health and Safety Plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the RI/FS. Respondent must orally notify EPA's Project Coordinator 14 days in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field layout of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. If delays occur outside of the planned schedule, the Respondent shall orally notify the EPA project coordinator and adjust the field schedule accordingly. In addition to the deliverables below, Respondent must provide monthly progress reports and participate in meetings with EPA at major points in the RI/FS.

3.1 Field Investigation

Field investigation includes the gathering of data to define Site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the Site. These activities shall be performed by Respondent in accordance with the RI/FS Workplan and SAP. This shall include performance of the activities as discussed in the following sections.

3.1.1 Implement And Document Field Support Activities

Respondent shall initiate field support activities following approval of the RI/FS Workplan and SAP. Field support activities may include obtaining access to the Site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. Respondent shall notify EPA's Project Coordinator 14 days prior to initiating field support activities so that EPA may adequately schedule oversight tasks. Respondent shall also orally notify EPA's Project Coordinator upon completion of field support activities.

3.1.2 Investigate And Define Site Physical And Biological Characteristics

Respondent shall collect data on the physical and biological characteristics of the Site and its surrounding

areas including the physiography, geology, hydrology, and specific physical characteristics identified in the RI/FS Workplan. This information shall be ascertained through a combination of physical measurements, observations, and sampling efforts and shall be utilized to define potential transport pathways and human and ecological receptor populations. In defining the Site's physical characteristics Respondent shall also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

The demographics of the region surrounding the Site shall be evaluated, updated, and expanded, as necessary to meet the project objectives and to provide an appropriate and adequate understanding of the following issues:

- Land use and population in the vicinity of the Site;
- The ecological setting of the Site and surrounding vicinity; and
- The biological setting including an analysis of the flora and fauna, any critical habitats and endangered species in the vicinity of the Site.

3.1.3 Define Sources Of Contamination

Respondent shall locate the source of contamination within the landfill. For each location, the areal extent of the various constituents and depth of contamination shall be determined by sampling at incremental depths at appropriate sampling locations. The physical characteristics and chemical constituents and concentrations shall be determined for all known and discovered sources of contamination within the landfill. Respondent shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs. Defining the source of contamination shall include analysis of the potential for contaminant release; contaminant mobility and persistence; and the characteristics necessary for evaluating remedial actions and treatment technologies.

The following issues shall be addressed to define the potential sources of impact from the Site.

- Evaluation of disposal practices at the Site to determine the types of materials disposed, the location of disposal activities, and the period of disposal. This may be accomplished by conducting interviews with past employees, a critical review of aerial photographs and subsurface investigations.

- Definition of the horizontal and vertical extent of the contamination, and impacted soils and groundwater.

- Identification of potential mechanisms of release, and/or transport and potential human and environmental receptors.

3.1.4 Physical And Chemical Characterization

Data collected during the field investigation shall enable characterization of the physical framework of the materials at and beneath the Site; and evaluation of potential contaminant distribution and concentration in those materials. Activities to address physical and chemical characterization of these media are discussed in the following sections.

3.1.4.1 Soil And Bedrock Characterization

The physical framework and chemical quality of the soil and bedrock at and beneath the Site shall be determined. Characterization activities shall include, but not be limited to, the following issues.

- Characterization of the lithology and stratigraphy of the soils and bedrock at and beneath the Site.

  - Soil characteristics such as soil type, holding capacity, biological activity, engineering properties, soil temperature, solubility, ion speciation, adsorption coefficients, leachibility, mineral partition coefficients, cation exchange capacity, and chemical and sorptive properties shall be evaluated as such relate to potential occurrence and migration of any contaminants.

  - The physical characterization of the unconsolidated profile must include an evaluation of unit morphology, unit thickness, areal thickness, areal extent and local lateral facies changes, and hydraulic properties.

- Bedrock characteristics such as bedrock stratigraphy, bedrock topography, karstic features, geologic, structural features, mineralogy, cementation, porosity, permeability and other hydraulic properties shall be evaluated as such relate to potential occurrence and migration of any contaminants.

- Determination of the areal and vertical extent of the contaminants. Initial chemical characterization samples shall be analyzed for volatile and nonvolatile organic compounds, total petroleum hydrocarbons, pesticides, PCBs, metals, and cyanides. Based on the results of initial sampling, the analyte list may be reduced to a more focused suite of chemicals.

- Determination of contaminant migration pathways and the persistence of the contaminants and related impacts.

- Determination of the extent of leachate migration in soil and bedrock adjacent to potential sources.

3.1.4.2 Hydrogeologic Framework And Groundwater Contamination

The hydrogeologic framework and the extent of potential groundwater impact associated with the contaminants in or originating from the Site shall be characterized. Characterization activities shall address, but not be limited to, the following issues.

- Determination of the nature of groundwater occurrence and flow beneath and in the vicinity of the Site which may include collection of monthly water levels, performance of aquifer testing, water balance calculations, evaluation of seasonal fluctuation in groundwater levels, seasonal gradient, flow rates and directions, transient gradients and impact to nearby surface water as such relate to potential occurrence and migration of any contaminants.

- Determination of the areal and vertical extent of the contaminants. Initial samples shall be analyzed for volatile and nonvolatile organic compounds, total petroleum hydrocarbons, pesticides, PCBs, metals, radionuclides, and cyanides. Based on the results of initial sampling, the analyte list may be reduced to a more focused suite of chemicals.

- Determination of contaminant migration pathways and the persistence of the contaminants and related impacts.

- Determination of seasonal variations in groundwater chemistry.

- Determination of groundwater flow conditions at and adjacent to the Site to include, but not limited to, the analysis of hydrologic relationships between the Site and the Mississippi River and impact to surface water quality.

3.1.4.3 Surface Water And Sediment Condition

The hydrologic framework and condition of nearby surface water and sediment associated with the contaminants in or originating from the Site shall be characterized. Characterization activities shall include, but not be limited to, the following issues.

- Collection of climatic and river stage data.

- Determination of surface drainage patterns.

- Determination of the areal and vertical extent of potential surface water and sediment impact and general surface water quality. Initial samples shall be analyzed for volatile and nonvolatile organic compounds, total petroleum hydrocarbons, pesticides, PCBs, metals, and cyanides. Based on the results of initial sampling, the analyte list may be reduced to a more focused suite of chemicals.

- Determination of potential migration pathways and the persistence of the contaminants and related impacts.

- Determination of the seasonal variations in surface water chemistry.

3.1.5 Atmospheric Dispersion

The atmospheric dispersion of contaminants shall be summarized and evaluated to determine the need for further investigations and monitoring.

3.1.6 Climate

Climatic data presented in previous investigation reports should be supplemented with current data. This information shall be needed to evaluate the Site water balance, determine groundwater recharge characteristics in the vicinity of the landfill, determine surface water/groundwater interactions, evaluate seasonal groundwater variations, determine the potential volume of leachate generated in the vicinity of the landfill, etc.

3.1.7 Describe the Nature and Extent of Contamination

Respondent shall gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, Respondent shall utilize the information on Site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. Respondent shall then implement an iterative monitoring program and any study program identified in the RI/FS Workplan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, Respondent shall gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the Site. Respondent shall use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

3.2 Data Analyses and Evaluation of Site Characteristics

Respondent shall analyze and evaluate the data to describe: (1) Site physical and biological characteristics, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the Site physical characteristics, source characteristics, and extent of contamination analyses shall be utilized to evaluate contaminant fate and transport. The evaluation shall include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models must be identified to EPA in a technical memorandum prior to

their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented in a format (i.e., computer disc or equivalent) to facilitate EPA's preparation of the baseline risk assessment. Respondent shall discuss and then collect any data gaps identified by the EPA that is needed to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment" OSWER Directive 9285.7-05, October 1990.) Also, this evaluation shall provide any information relevant to Site characteristics necessary for evaluation of the need for remedial action in the baseline risk assessment and for the development and evaluation of remedial alternatives. Analyses of data collected for Site characterization shall meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RI).

A Baseline Risk Assessment shall include all the principal contaminants except for any that can be shown not to be significant.

3.3 Data Management Procedures

The quality and validity of field and laboratory data compiled during the RI shall be adequately and consistently documented during performance of the RI/FS.

3.3.1 Document Field Activities

Information gathered during Site characterization shall be consistently documented and adequately recorded in well maintained field logs and laboratory reports. The method(s) of documentation shall be specified in the RI/FS Workplan and/or the SAP. Field logs shall be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports shall document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

3.3.2 Maintain Sample Management and Tracking

Field reports, sample shipment records, analytical results, and QA/QC reports shall be maintained to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the RI/FS Workplan shall not be included in any site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC

report. In addition, a data security system shall be established to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

3.4 Site Characterization Deliverables

An interim investigation technical memorandum shall be submitted during the early phases of implementation of RI field activities upon completion of the interim investigation. A Preliminary Site Characterization Summary shall be prepared and submitted to EPA prior to preparation of the Baseline Risk Assessment. The Remedial Investigation Report shall be prepared upon completion of the Baseline Risk Assessment. A description of these deliverables follows.

3.4.1 Site Characterization Summary

After the field sampling and analysis is completed, a report entitled Site Characterization Summary Report shall be prepared for EPA for use in preparing the Baseline Risk Assessment. This summary shall review the investigative activities that have taken place, and describe and display data documenting the location and characteristics of surface and subsurface features and contamination at the Site including the affected media, location, types, physical state, concentration of the contaminants and quantity. In addition, the location, dimensions, physical condition, and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media shall be documented.

3.4.2 Remedial Investigation (RI) Report

A draft RI Report shall be prepared and submitted to EPA for review and approval. The report entitled Draft Remedial Investigation Report shall summarize results of field activities to characterize the Site, sources of contaminants, nature and extent of contaminants and associated impacts and the fate and transport of the contaminants. Following comment by EPA, the draft RI report shall be revised and resubmitted as the Final Remedial Investigation Report for final EPA review and approval.

4.0 TASK III - TREATABILITY STUDIES

The potential need for treatability testing shall be evaluated. Based on the results of the evaluation, a technical

memorandum entitled Evaluation of Need for Treatability Studies shall be prepared and submitted to EPA stating whether, in Respondent's opinion, a treatability study is warranted.

If treatability testing is deemed necessary by EPA, treatability testing shall be performed by Respondent during Phase II to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and operating conditions shall be used in the detailed design of the selected remedial technology. The following activities shall be performed by Respondent.

4.1 Identification of Candidate Technologies and of the Need for Testing

Respondent shall identify in a technical memorandum entitled Candidate Technologies for Treatability Studies, subject to EPA review and approval, candidate technologies for a treatability studies program during scoping. The listing of candidate technologies shall cover the range of technologies required for alternatives analysis. The specific data requirements for the testing program shall be determined and refined during Site characterization and the development and screening of remedial alternatives.

4.1.1 Conduct Literature Survey and Determine the Need for Treatability Testing

Respondent shall conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance ("O&M") requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for the Site on the basis of available information, treatability testing shall be conducted. Where it is determined by EPA that treatability testing is required, and unless Respondent can demonstrate to EPA's satisfaction that they are not needed, Respondent shall develop and discuss with EPA a treatability testing scope of work outlining the steps and data necessary to evaluate and initiate the treatability testing program.

4.1.2 Evaluate Treatability Studies

Once a decision has been made to perform treatability studies, Respondent and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install

pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, Respondent shall either submit a separate treatability testing workplan or an amendment to the original RI/FS Workplan for EPA review and approval.

4.2 Treatability Testing and Deliverables

The deliverables that are required, in addition to the memorandum identifying candidate technologies, where treatability testing is conducted include a workplan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, or an amendment to the Site Health and Safety Plan.

4.2.1 Treatability Testing Workplan

Respondent shall prepare a plan entitled Treatability Testing Workplan or an amendment to the original RI/FS Workplan for EPA review and approval describing the Site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing shall be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale workplan shall describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-Site, permitting requirements shall be addressed.

4.2.2 Treatability Study Sampling and Analysis Plan ("SAP")

If the original QAPP or FSP is inadequate for defining the activities to be performed during the treatability tests, a separate treatability study SAP or amendment to the original Site SAP shall be prepared by Respondent for EPA review and approval. Task I, Section 2.3.2 of this SOW provides additional information on the requirements of the SAP.

4.2.3 Treatability Study Site Health and Safety Plan

If the original Site Health and Safety Plan is inadequate for defining the activities to be performed during the treatment tests, a separate or amended health and safety plan shall be developed by Respondent. Task I, Section 2.3.3 of this SOW provides additional information on the requirements of the health and safety plan. EPA will review but does not "approve" the treatability study health and safety plan.

4.2.4 Treatability Study Evaluation Report

Following completion of treatability testing, Respondent shall prepare a report, delivered to EPA for review and approval entitled Treatability Study Evaluation Report which analyzes and interprets the testing results. Depending on the sequence of activities, this report may be a part of the Remedial Investigation Report or a separate deliverable. The report shall evaluate each technology's effectiveness, implementability, cost, and actual results as compared with predicted results. The report shall also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

5.0 TASK IV - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

A range of appropriate waste management options that ensure protection of human health and the environment shall be developed and screened in this task concurrently with Task II (Site Characterization), consistent with applicable EPA guidance, including the streamlined RI/FS and presumptive remedy guidances for CERCLA Municipal Landfill Sites. This range of alternatives should include as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The Respondent shall perform the following activities as a function of the development and screening of remedial alternatives.

5.1 Develop Remedial Alternatives

A range of appropriate waste management options shall be developed that ensure protection of human health and the

environment. This development shall occur concurrently with Task II (Site Characterization).

5.2 Refine and Document Remedial Action Objectives

Site-specific remedial action objectives shall be reviewed and modified if necessary. The revised Site-specific remedial action objectives shall be documented in a technical memorandum entitled Refined Remedial Action Objectives that shall be reviewed and approved by EPA. The refined remedial action objectives shall specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

5.3 Develop General Response Action

General response actions shall be developed for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

5.4 Identify Areas or Volumes of Media

Areas or volumes of media to which general response actions may apply shall be identified.

5.5 Identify and Screen Remedial Technologies

Technologies applicable to each general response action shall be identified and evaluated to eliminate those that cannot be implemented. The general response actions shall be refined to specify remedial technology types. Technology process options for each of the technology types shall be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options shall be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The reasons for eliminating alternatives shall be specified.

5.6 Assemble Alternatives

Selected representative technologies shall be assembled into alternatives for each affected medium. Together, all of the alternatives shall represent a range of treatment and containment combinations that shall address the Site. The reasons for eliminating alternatives during the preliminary screening process shall be specified.

5.7 Refine Alternatives

The remedial alternatives shall be refined, taking into account contaminant volume, proposed process, and sizing of critical unit operations. Site specific remediation objectives for each chemical in each medium shall also be modified as necessary to incorporate any applicable risk assessment information presented in the Baseline Risk Assessment report. Additionally, action-specific ARARs shall be updated as necessary.

5.8 Conduct Screening Evaluation of Each Alternative

Respondent may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives shall be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening shall preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable.

5.9 Alternatives Development and Screening Deliverables

A report entitled Development and Screening of Remedial Alternatives shall be prepared summarizing the work performed in and the results of each task above, including an alternatives array summary for EPA review and approval. This deliverable at a minimum shall document the methods, rationale, summary of the assembled alternatives and their related action-specific ARARs, and results of the alternatives screening process including the identification of the action-specific ARARs for the alternatives that remain after screening.

6.0 TASK V - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

A detailed analysis of remedial alternatives shall be conducted to provide EPA with the information needed to allow for the selection of a remedy. This analysis is the final task to be performed during the FS.

6.1 Detailed Analysis of Remedial Alternatives

A detailed analysis of remedial alternatives shall be conducted consisting of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

6.1.1 Apply Nine Criteria and Document Analysis

The following nine evaluation criteria shall be applied to the assembled remedial alternatives: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume through treatment; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state acceptance; and (9) community acceptance. For each alternative the following shall be provided: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the individual criterion assessment.

6.1.2 Compare Alternatives Against Each Other and Document the Comparison of Alternatives

A comparative analysis shall be performed between the remedial alternatives by using the nine evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. A technical memorandum entitled Comparison of Alternatives shall be submitted to EPA for review and approval which provides a comparative analysis of the alternatives.

6.2 Detailed Analysis Deliverables Feasibility Study (FS) Report

Respondent shall prepare a Draft FS Report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. Respondent should refer to the Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, October 1988) for an outline of the report format and the required report content. Respondent shall prepare a Final FS Report which satisfactorily addresses EPA's comments and is approved by EPA.

7.0 SUMMARY OF DELIVERABLES

The following is a table summarizing the RI/FS deliverable documents.

TASK/DELIVERABLE	EPA ACTION
TASK I - SCOPING	
• **Workplan:**	
Draft RI/FS Workplan	Review and Comment
Final RI/FS Workplan	Review and Approve
Draft Sampling and Analysis Plan (SAP)	Review and Comment
Final Sampling and Analysis Plan (SAP)	Review and Approve
Site Health and Safety Plan	Review and Comment
Interim Action Workplan (if needed)	Review and Approve
TASK II - SITE CHARACTERIZATION	
• **Technical Memorandum:**	
Modeling of Site Characteristics (if needed)	Review and Approval
• **Technical Report:**	
Site Characterization Summary Report	Review and Approve
Draft Remedial Investigation (RI) Report	Review and Comment
Final Remedial Investigation Report	Review and Approve
TASK III - TREATABILITY STUDIES	
• **Technical Memorandum:**	
Evaluation of Need for Treatability Studies	Review and Approve
Candidate Technologies For Treatability Studies (if needed)	Review and Approve

- **Workplan:**

Treatability Testing Workplan (or amendment to RI/FS Workplan, if needed)	Review and Approve
Treatability Study SAP (or amendment to original, if needed)	Review and Approve
Treatability Study Site Health and Safety Plan (or amendment to original, if needed)	Review and Approve

- **Technical Report:**

Treatability Study Evaluation Report (if needed)	Review and Approve

TASK IV - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

- **Technical Memorandum:**

Refined Remedial Action Objectives	Review and Approve

- **Technical Report:**

Development and Screening of Remedial Alternatives	Review and Approve

TASK V - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

- **Technical Memorandum:**

Comparison of Remedial Alternatives	Review and Approve

- **Technical Report:**

Draft Feasibility Study (FS) Report	Review and Comment
Final Feasibility Study (FS) Report	Review and Approve

MISCELLANEOUS

- Monthly Status Reports

8.0 REFERENCES

The following list, although not exhaustive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The National Contingency Plan, 40 C.F.R. Part 300.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Presumptive Remedies: Policy and Procedures," U.S. EPA, Office of Solid Waste and Emergency Response, September 1993, OSWER Directive No. 9355.0-47FS.

"Presumptive Remedy for CERCLA Municipal Landfill Sites," U.S. EPA, Office of Solid Waste and Emergency Response, September 1993, OSWER Directive No. 9355.0-49FS.

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

"Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory Program," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Preparing Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A)," December 1989, EPA/540/1-89/002

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/001

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G-90/008

"Performance of Risk Assessments in Remedial Investigation /Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 C.F.R. § 1910.120.

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.

"Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites", U.S. EPA, Office of Emergency Remedial Response, February 1991, EPA Doc. No. EPA/540/P-91/001.2

"Streamlining the RI/FS for CERCLA Municipal Landfill Sites," U.S. EPA, Office of Emergency and Remedial Response, September 1990, OSWER Directive No. 9355.3-11FS.

"Presumptive Remedy for CERCLA Municipal Landfill Sites," U.S. EPA, Office of Emergency and Remedial Response, September 1993, OSWER Directive No. 9355.0-49FS.

"Feasibility Study Analysis for CERCLA Municipal Landfill Sites," U.S. EPA, August 1994.