



## **Final Close Out Report**

**Agriculture Street Landfill Superfund Site**  
New Orleans, Louisiana

**United States Environmental  
Protection Agency  
Region VI  
Superfund Division**

**April 2002**

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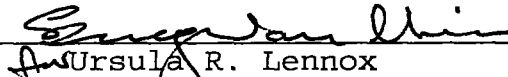


FINAL CLOSE OUT REPORT  
CONCURRENCE DOCUMENTATION  
FOR THE  
AGRICULTURE STREET LANDFILL SUPERFUND SITE

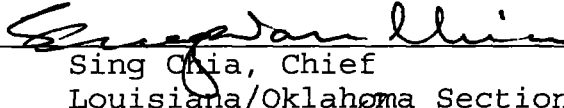
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OPERABLE UNIT 2 - Residential Properties  
OPERABLE UNIT 3 - Shirley Jefferson Community Center



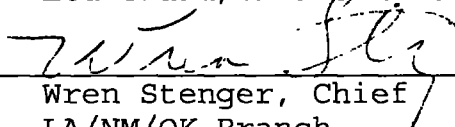
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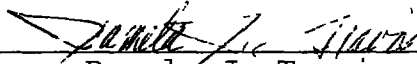
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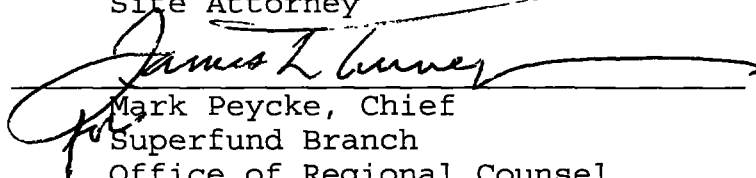
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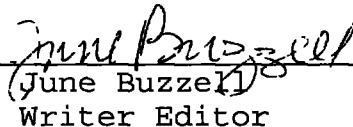
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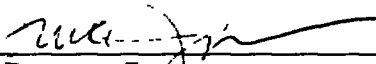
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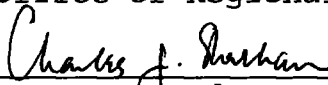
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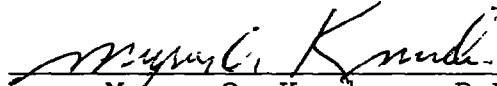


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AGRICULTURE STREET LANDFILL SITE  
New Orleans, Louisiana**

**I. INTRODUCTION**

This Final Close Out Report documents that the U.S. Environmental Protection Agency (EPA) completed all response actions for the Agriculture Street Landfill site in accordance with Close Out Procedures for National Priorities List Sites (OSWER Directive 9320.2-09A-P).

**II. SUMMARY OF SITE CONDITIONS**

**Background**

The Agriculture Street Landfill (ASL) Superfund site is a former municipal landfill comprised of approximately 95 acres of land, of which 48 acres are undeveloped and 47 acres have been developed for residential use. The site is located within the eastern city limits of New Orleans, Orleans Parish, Louisiana, approximately 3 miles south of Lake Pontchartrain and 3 miles north-northeast of the city's central business district. Operations at ASL began in approximately 1909 and continued until the landfill was closed in the late 1950s. The landfill was reopened for approximately one year in 1965 for use as an open burning and disposal area for debris left in the wake of Hurricane Betsy. Records indicate that during its operation the landfill received municipal waste, ash from the city's incineration of municipal waste, and debris and ash from open burning. Early investigations yielded no evidence that industrial or chemical wastes were transported to or disposed of at the site.

In 1986, EPA Region 6 conducted a Site Inspection and prepared a Hazard Ranking System (HRS) documentation record package utilizing the 1982 HRS model. The site score was not sufficient for the site to be considered for proposal and inclusion on the National Priorities List (NPL). Pursuant to the requirements of Superfund Amendments and Reauthorization Act of 1986 (SARA), which amended the original Superfund legislation, EPA published a revised HRS model on December 14, 1990. At the request of area community leaders, EPA in September 1993 initiated an Expanded Site Inspection (ESI) to support the preparation of an updated HRS documentation record package that would evaluate the site's risks using the revised HRS model. Subsequently, on August 23, 1994, the ASL site was proposed for inclusion on the NPL as part of NPL update No. 17, and on December 16, 1994, EPA placed the ASL site on the NPL.

**Remedial Removal Integrated Investigation/Engineering Evaluation Cost Analysis**

To effectively investigate and develop alternatives for the remediation of the 95 acre site, EPA, the lead agency, divided the site into five operable units (OUs):

- OU1 - The undeveloped property;
- OU2 - The residential development which consists of the Gordon Plaza Apartments, single family dwellings in Gordon Plaza subdivision, and the Press Court town homes;
- OU3 - Shirley Jefferson Community Center;
- OU4 - Moton Elementary School which includes Mugrauer Playground; and,
- OU5 - Ground water

Prior to 1994, access to OU1, the undeveloped portion of the former landfill, was unrestricted, allowing unauthorized waste disposal and exposure to contaminants of potential concern such as lead, arsenic, and carcinogenic polynuclear aromatic hydrocarbons (cPAHs) found in the surface and subsurface soils. Dioxins were detected, but not at concentrations exceeding 1 microgram per kilogram (ug/kg), a standard used by EPA for residential cleanup at other Superfund sites. In a time-critical removal action, initiated in March 1994, EPA installed an 8-foot-high, chain-link fence topped with barbed wire around the entire undeveloped portion of the former landfill.

Concurrent with this action, EPA performed a Remedial Removal Integrated Investigation (RRII) of the entire site. Principle contaminants in soil were lead, arsenic, and cPAHs. Of these, lead was the most prevalent contaminant.

Based on information presented in the RRII report, EPA conducted a second time-critical removal action at the site in February 1995, and performed confirmational air and ground water sampling. Through this sampling event, EPA was able to obtain a second round of analyses of the ground water, and also clarify earlier identified ambient air contaminants, and verify the composition and magnitude of indoor air contaminants.

The removal action consisted of removing playground equipment and capping contaminated soil at the Shirley Jefferson Community Center (OU3). The equipment was located in a children's play area which exhibited surface soil lead contamination above 1,000 milligrams/kilogram (mg/kg). The depression created by removal of the equipment was built up to grade with clean backfill, and the entire area was sodded with heavy grass to create a restrictive barrier and to limit contact with contaminated soils.

Also in 1995, EPA completed an Engineering Evaluation/Cost Analysis, which evaluated alternatives for responding to hazardous substances for OU1, 2, and 3 under a Non-Time Critical Removal Action. In March of 1996, EPA completed a third time-critical removal action to repair the fence surrounding OU1. The fence was damaged by trespassers who sought access into this area.

The EPA released a Proposed Plan of Action on February 28, 1997. The Proposed Plan recommended no action for the undeveloped property (OU1), the Moton Elementary School (OU4), and the ground water (OU5). Public comments indicated the community did not support the proposal for OU1 which was to maintain the fence and solicit public comments on other

actions or land use restrictions. The community raised concerns of additional exposure to contaminants on OU1, runoff, and rodents.

The EPA provided an additional opportunity to submit comments on alternatives for the undeveloped property and at the conclusion of the comment period, OU1 was also included in the planned Non-Time Critical Removal Action.

### **ROD and Action Memorandum Findings**

On September 2, 1997, EPA issued an Action Memorandum for Non-Time Critical Removal Action for OU1, 2, and 3 and a Record of Decision (ROD) for OU4 and 5. The ROD concluded that no further action was required at Moton Elementary School (OU4) and ground water (OU5). During the RRII, EPA found that chemical concentrations of hazardous substances (i.e., lead and metals) in surface and subsurface soils on OU4 were below concentrations considered protective for human and ecological receptors, and that OU4 did not present unacceptable risks attributable to site contaminants. Site investigations also showed that groundwater beneath the Site was not used for any beneficial purpose and was not a potential source of drinking water. Moreover, residents in the area of the site are served by the municipal drinking water supply of the City of New Orleans, which is drawn from surface water sources, not from ground water. The ROD recommended that both OUs be deleted from the NPL, which was subsequently accomplished, after notice and an opportunity for public comment, on June 15, 2000.

The Action Memorandum issued on September 2, 1997 authorized funding for a Non-Time Critical Removal Action on OU1, 2, and 3. The removal action on OU1 consisted generally of clearing the 48-acre area, grading it to direct storm water runoff away from the adjacent residential area, laying a permeable geotextile mat followed with orange fencing (to serve as a highly visible marker), covering the mat/marker with twelve inches of clean fill, and re-establishing a vegetative layer on the clean fill.

The removal action on OU2 and 3 consisted generally of excavating twenty-four inches of soil, placing a permeable geotextile mat/marker in the subgrade, backfilling the excavated area with clean fill, and covering the clean fill with grass sod. In certain areas, surface features such as fences, driveways, sidewalks, etc., were removed in the course of excavation; once the basic excavation and backfill were completed, such surface features were restored or replaced. The selected response action for these operable units is consistent with soil removal and remedial actions performed at residential/industrial properties located on or near Superfund sites.

Numerous attempts have been made to encourage the city of New Orleans, which is the only identified potentially responsible party (PRP) for this site, to perform or finance site investigations, or provide in-kind services for the response actions planned for OU1, OU2, and OU3. Evidence of this effort is highlighted in the site's Administrative Record. The PRP has expressed its inability to fund any of these actions. As a result, EPA used funds from the Hazardous Substance Superfund to finance the RRII, EE/CA, and all other investigative and

response actions.

### **Design Criteria**

On September 24, 1997 EPA entered into an interagency agreement with the U.S. Army Corps of Engineers (USACE) to implement the non time critical removal action described in the Action Memorandum (signed September 2, 1997). The USACE utilized their Total Environmental Restoration Contract (TERC) with OHM Remediation Services Corporation (later to merge and form the IT Group, Inc.) as its contractor to perform the soil removal action. The Superfund Technical Assessment and Response Team (START) contractor was responsible for documentation, implementation of the air monitoring program, and to provide data management support. The contractor identified an off-site disposal facility in compliance with the Superfund off-site policy.

### **Removal Construction Activities**

EPA's goal expressed through the Action Memorandum and to the community was to:

- Remove the environmental threats to residents;
- Prevent the release of COPC-contaminated dust to the air at concentrations that could adversely affect human health and the environment;
- obtain consent and participation of the community; and
- leave the community fully functioning and a better place to live than before Superfund designation.

To minimize the impact to workers and residents, the EPA developed a site-specific air monitoring program that detailed action levels for lead, dust, and organic compounds. The document suggested procedures to employ when action levels were met or exceeded.

Prior to site mobilization, the EPA, USACE, TERC, and START met to discuss overall removal plans and site-specific criteria. Within these meetings, plans were established to: provide a site computer system designed to track and manage site information; hire local labor; arrange for a site command post area; and delegate responsibilities to parties involved.

The response action on OUI, 2, and 3, was performed in two phases; the first phase commenced October 15, 1998. During mobilization the START contractor performed background air monitoring and participated in EPA meetings. Information meetings were conducted for senior citizens at the Gordon Plaza Center on the afternoon of October 19, 1998, and in the evening for the public at the Shirley Jefferson Community Center. EPA and contractor representatives answered questions concerning removal activities, the work schedule, and air monitoring. Equipment that would be utilized in the air monitoring/sampling program was also on display.

Site documentation and soil gas surveys were completed prior to any removal activity on OUI,

due to the association between methane gas and landfills. Based on the Lower Explosive Limit readings from 66 soil borings from OU1, the soil gas surveys were canceled. Removal activities for Phase I began on October 21, 1998, with the clearing and grubbing of dense vegetation found on OU1. The contractor and the EPA agreed upon a grading plan, which directed rainwater runoff to the south and southwest of the site into the Peoples Canal. Air monitoring stations were placed daily to monitor the work area perimeter. Real-time instruments monitored for total suspended particulates (TSP) readings, and sampling instruments were used to collect samples for laboratory analysis of TSP, total lead, and volatile organic compounds. Once an area had been lined and backfilled, air monitoring was discontinued at that location. During all phases of the process, water was used to control fugitive dust. Water-dispersing trucks and hand-held hoses were utilized daily throughout the work areas for dust control.

For tracking purposes, the activities performed at each residence were divided into 11 distinct stages during the implementation of Phase I and II activities. The stages were tracked by date within a database and utilized to follow the progression of removal activities, populate the GIS, and establish a tract status schedule. A more detailed description of each stage is discussed in the Documentation Standard Operating Procedure (SOP) provided as an attachment to the START Work Plan located in the Close Out Reports dated June 2000 and June 2001. The 11 stages included the following:

**Stage 1 (Access Agreement)** - An access agreement was collected from each owner and/or tenant before any work was conducted. START assisted the USACE in obtaining the access agreements.

**Stage 2 (Initial Survey)** - A START member interviewed the resident and determined if there were any specific problems that needed attention, and if there were any structures or property the owner wanted to have disposed, stored, or left untouched. At this stage, the specific responsibilities of the owner were delineated. START conducted thorough documentation of the property using drawings, digital photographs, and videotapes. Once the property was documented, the owner was required to sign the assessment forms prepared by START. Documentation of the privately owned Gordon Plaza homes also included a video of the inside of the exterior walls.

**Stage 3 (Restoration Agreement)** - The START Project Manager developed the structural concrete and fence restoration plan for each property. The excavation did not commence until the USACE and the owner agreed upon a restoration plan.

**Stage 4 (Re-Vegetation Agreement)** - The landscape architect, contracted by TERC, developed a landscaping restoration plan for each property. The excavation did not commence until the USACE and the owner agreed upon a restoration plan.

**Stage 5 (Initial Documentation Complete)** - This included the initial documentation, Restoration Agreement, and Re-Vegetation Agreement.



**Stage 6 (Excavation)** – Each tract was excavated by TERC. START conducted documentation and depth confirmations.

**Stage 7 (Backfill)** - After excavation, a permeable non-woven geotextile liner with visual barrier fabric was placed in the excavated area by TERC. After lining, the excavation area was backfilled and compacted by TERC.

**Stage 8 (Restoration)** - Restoration of the property, including landscaping, sod, fencing and concrete, was conducted by TERC and documented by START.

**Stage 9 (Final Inspection)** - After restoration activities were completed, the USACE representative conducted a final inspection.

**Stage 10 (Final Survey)** - A final video and digital photographic survey of the property was conducted by START.

**Stage 11 (Owner Release)** - After completion of the final inspection, the property owner was asked to sign the assessment forms.

The first phase concluded February 2, 2000. At the conclusion of Phase I site activities, 95.5% of the site covered by the Action Memorandum had been addressed including all of OU1 and OU3, all of the commercial properties and multiple family dwellings in OU2, and 25 of the 67 single family residences in OU2. The second and final phase commenced August 9, 2000. On April 27, 2001, EPA, the Louisiana Department of Environmental Quality (LDEQ), the U.S. Army Corps of Engineers (USACE) and its contractors conducted a final inspection and determined that the goals established in the Action Memorandum (dated September 2, 1997) had been successfully achieved on 99% of the site. Nine private homeowners elected not to participate in the removal action.

At the conclusion of each phase, a Close Out Completion Package was provided to each owner of property in Operable Unit 1, 2, or 3 who participated in the removal action. The package contained:

- a Close Out Letter;
- a Certificate of Completion; and
- instructions on how to maintain the permeable cap, including instructions for any necessary excavation below the geotextile mat/marker.

Owners of properties that were not part of the response action received a letter and fact sheet from EPA stating that maintaining the surface vegetation will minimize the potential exposure to contaminants in the subsurface soils and will prevent soil erosion. The letter also informed the residents that the contaminants of concern do not readily dissolve in water, but adhere to soil particles. Thus, in the event of a flood, the contaminants in the subsurface soil are expected to

remain in place and not pose an additional exposure to the residents.

### **Community Relations Activities**

EPA has conducted extensive community outreach at this site from the inception of site investigations to the present. Early in the site investigation stages, EPA rented the Press Park Community Center (now known as Shirley Jefferson Community Center), centrally located on the site for use as a community outreach office. Subsequently, EPA rented one of the Press Park townhomes (also located on the site), to serve as the community outreach office. The Outreach Office houses the Administrative Record, with facilities for the public to review and copy it, and is open at hours during the week designed to accommodate the schedules of site residents. It has also provided space for open houses and other public information events. During portions of the implementation phase of the project, the Outreach Office housed a computer terminal for public use, so that members of the public could access the site's webpage, which posted the latest information about site activities (truck routes, air monitoring results, etc.). During the second phase of field work, EPA and its contractors used the Shirley Jefferson Community Center as a command post, conducting community outreach from there as well as from the Press Park townhouse Outreach Office.

Community relations activities leading up to the Action Memorandum for OU1, 2, and 3 and the ROD for OU4 and 5 are described in the September 2, 1997 ROD, pp. 5-8. Community outreach was an integral part of implementing the response action, as well as selecting it.

Extensive Community Outreach efforts were put in place to keep the site residents and other interested members of the public well informed. In July, 1998, at the request of the Mayor's Office of Environmental Affairs, the EPA Assistant Administrator for the Office of Solid Waste and Emergency Response and technical experts from EPA Headquarters, along with EPA regional management and staff, met with city and community leaders and technical consultants to describe the selected response action and address their questions and concerns.

Community outreach was fully integrated into EPA's advance planning for the response action. Prior to mobilization, EPA prepared and distributed a Resident Action Guide which explained the response action in detail, from initial access agreements and rodent control efforts to excavation and restoration. The Resident Action Guide also provided contact information for use by site residents who might need assistance during the course of the project, and was updated as necessary after the initial issue. EPA also designated a Resident Services Manager to be available on-site for questions and complaints throughout project implementation, and established a 24-hour call system.

Prior to field mobilization, EPA set up a database to track interactions with individual property owners and to make a record of actions conducted on each individual property. The database contains such items as access agreements for rodent control, access agreements for the response action, videotapes of each property before and after the response action was conducted, an

inventory of any personal property placed in storage during excavation, complaints and concerns of the property owner, measures taken to resolve them, and other detailed information, organized as a separate file for each individual property.

EPA, through an interagency agreement with the U.S. Army Corps of Engineers (USACE) and its contractors (IT Corp. and Ecology and Environment, Inc.), also conducted a series of public information meetings and availability sessions on topics related to particular portions of the response action. Notices of general meetings and availability sessions are contained in the Administrative Record.

In addition, EPA attended meetings hosted by the community to answer questions associated with the removal action, and participated in meetings and site tours initiated by EPA Headquarters in response to resident concerns. EPA also worked with community leaders and their technical advisors, sharing findings and weekly reports throughout project implementation. EPA Region 6 coordinated with LDEQ, and the Agency for Toxic Substances and Disease Registry (ATSDR - part of the U.S. Public Health Service) and the State Health Department provided valuable services prior to and during the removal actions in the form of answering community health questions and providing general health information. ATSDR conducted health consultations for residents and provided blood lead level monitoring, provided suggestions for additional studies and sampling procedures, provided assessments of EPA's air sampling programs, and other health services for the community (i.e. the implementation of an Environmental Health Intervention Project). Moreover, training programs were made available to the community and public for persons interested in working on this or other Superfund Projects.

Regional staff and management also met with potential investors as requested by community leaders interested in residential relocation and/or redevelopment of the area). Finally, EPA coordinated with the various utility companies serving the area to provide for expeditious repairs of utility interruptions during the response action. EPA also prepared a technical abstract describing proper procedures for excavation and backfill above and below the permeable geotextile mat and marker, distributed the abstract to local utilities, and held a field demonstration for utility company representatives, to ensure the continued integrity of the response action once completed.

On October 12, 2001, the Proposed Plan of Action that presented EPA's recommendation not to conduct further action on OU1, 2, and 3 was formally released. The public was notified that site documents were available in the Administrative Record, maintained at the information repositories located at EPA's outreach office at the site, the EPA-Region 6 Office, and LDEQ. Notice of the public meetings scheduled on October 18 and 25, 2001, was published in the Times Picayune on October 12, 2001. Oral comments were accepted at the public meetings, and transcripts of these meetings were added to the Administrative Record. Approximately 50 people attended each public meeting; many commented on the record.

The 30-day public comment period was held from October 12, 2001 through November 13, 2001. An extension was requested and the comment period was extended an additional 30 days. The EPA accepted comments from the public until the end of the extended comment period that concluded on December 13, 2001.

The EPA's response to comments received during the public comment period and the public meetings are provided in the Responsiveness Summary. The decision for the undeveloped property (OU1), the residential properties (OU2), and the Shirley Jefferson Community Center (OU3), is based on the Administrative Record.

### **III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL**

EPA, the USACE, and LEDQ reviewed all work plans associated with the implementation of the non-time critical soil removal action and coordinated with the removal contractor on excavation activities. Construction activities implemented on OUs 1, 2, and 3 were determined to be consistent with the Action Memorandum (signed September 2, 1997) for a Non-Time Critical Removal Action and work plans developed for this response action.

The TERC and their subcontractors were responsible for the implementation of the soil removal action. The removal contractor adhered to the approved work plans and the Quality Control protocols. All excavations, restoration actions, confirmatory inspections, and evaluations of materials and workmanship were performed in accordance with the work plans developed for the soil removal action. Engineering issues, quality control of the work performed by TERC, inspection of the quality of the workmanship of restoration operations, authorization of restoration plans and approval of deviations from the work plans were performed by the USACE.

The START contractor responsibilities included: conducting air monitoring and sampling, documenting on-site activities and properties, organizing site files and databases, providing a pre- and post-survey of the properties, assisting with the Geographic Information System (GIS) development and the construction and upkeep of a site web page.

The EPA On-Site Coordinator (OSC) and USACE were on-site throughout the implementation of the soil removal action to observe construction progress and evaluate and review the results of Quality Assurance and Quality Control (QA/QC) activities. The EPA RPM and LDEQ also visited the site to observe construction progress, and periodically joined the OSC in meetings with the USACE to discuss progress, potential problems, and deviations from the work plan or drawings. Deviations were documented and maintained in the GIS database.

All procedures and protocol followed for soil and air sample analysis during the soil removal action were documented and maintained in the GIS database. EPA analytical methods were used and soil samples were analyzed at a laboratory under contract to the Contract Laboratory Program. EPA, USACE, the Agency for Toxic Substances and Disease Registry and LDEQ

determined that analytical results were accurate to the degree needed to assure satisfactory execution of the 1997 Action Memorandum, and adherence to the standards established in the "Dust Control and Air Monitoring Technical Discussion" document.

#### **IV. MONITORING RESULTS**

The health and safety of the residents and removal team on the ASL site was of paramount concern during the removal action. Air sampling procedures had been developed during the Phase I Removal Action and conformed with the EPA's site-specific air quality guidance. The program was developed to monitor the effectiveness of the removal contractor's efforts to prevent fugitive dusts from migrating outside of the work areas and to ensure that site activities did not impact off-site receptors. The air monitoring program involved both real time monitoring and quantitative air sampling, and was conducted during the entire Phase II Removal Action. Prior to initiating excavation activities, background air sampling was conducted to provide a baseline from which data could be compared once removal activities began. Monitoring and air sampling were conducted in accordance with the monitoring program developed by ATSDR as incorporated into the START Work Plan (Phase II Close Out Report - Attachment L). In order to obtain real-time information, ambient air monitoring was conducted using personal data rams (pDRs). The pDRs measure random aerosol mass (dust) using a system of infrared light and mirrors. The information was used to create graphs to visually represent the data.

Quantitative air sampling was conducted for total suspended particulates (TSP) and lead using High Volume (Hi-Vol) TSP samplers. Negative pressure canisters (Summa canisters) were utilized for the collection of air samples to be analyzed for volatile organic compounds (VOCs). Air samples were delivered to the START Analytical Services Center (ASC) for laboratory analysis. The turn around time to receive information on the samples was 72 hours for TSP and lead analysis, and 7 days for the VOC analysis. Data tables containing the Phase II TSP and lead air sampling results are located in the Phase II Close Out Report - Attachment H, and the Summa canister sampling results are located in the Phase II Close Out Report - Attachment I.

The air monitoring team selected various locations within the Gordon Plaza Subdivision for background sampling. Samples were collected and analyzed for lead and TSP. Real-time particulate-measuring instruments, pDRs, were deployed for gathering background data in determining ambient dust concentrations.

Excavation-related air monitoring and sampling activities were also performed. Site excavation was monitored for TSP and lead on a daily basis with the exception of those days when weather conditions (rain or fog) prohibited the use of the sampling equipment. The number of station locations was determined each day depending upon the TERC contractor's excavation plans and the wind/weather. Samples were shipped to the START Analytical Services Center for laboratory analysis and results were calculated once preliminary data had been received (Phase II Close Out Report - Attachments H and O). On a daily basis, each station consisted of a pDR monitor, a Hi-Vol TSP sampler, and a portable generator (to power the equipment). All equipment was highly

mobile and was deployed prior to the beginning of excavation activities, and retrieved each evening after the excavation crews had completed the day's work. As a general rule, excavation areas were monitored with a minimum of two sampling stations located downwind and one sampling station located upwind. A background location was also monitored to provide comparison data and a duplicate sampler was co-located with a station once per 20 samples taken to provide QA/QC data. Weather data utilized in the calculation of air sampling data was obtained from the New Orleans Lakefront Airport located approximately 4.5 miles north of the site. Sampling of backfill material was also performed, before being used in restoration activities.

## **V. SUMMARY OF OPERATION AND MAINTENANCE**

The response measures were completed in accordance with the Action Memorandum, the Statement of Work, design documents, and Work Plans formulated to implement the Action Memorandum. The constructed action is operational and performing according to engineering design specifications. Operation and maintenance activities, including maintenance of the cap and vegetative cover, should be continued by each individual property owner.

## **VI. SUMMARY OF REMEDIATION COSTS**

The original cost estimate to implement the Non-Time-Critical Removal Action described in the Action Memorandum was \$20 million. The Interagency Agreement with the USACE was subsequently amended for an additional \$3 million. As of January 2002, the USACE in-house cost is \$1,690,058.05.

The total contract expenditure through December 2001 for Phase I and II operations, including restoration, disposal, and the TERC support was \$17,352,980.86. The START contractor support expenditures for Phase I and II totaled \$2,823,381.16. Removal support was managed by the START contractor and included conducting air monitoring and sampling, maintaining the site Geographic Information System and the site computer system, maintaining site files and databases, etc. As of January 2002, the total cost incurred by USACE and its contractors was \$21,866,420.07.

## **VII. PROTECTIVENESS**

The potential risk associated with the possible exposure to surface soil contaminants was eliminated through the response action that was implemented on the OU1, 2 and 3. All cleanup actions and other response measures identified in the Action Memorandum dated September 2, 1997, to be conducted on OUs 1, 2, and 3 of the ASL site were successfully implemented on each OU, with the exception of nine residential properties located in the Gordon Plaza subdivision where access was not granted.

In addition to advising all property owners where response actions had occurred about property

maintenance procedures, EPA coordinated with the utility companies serving the area and conducted a field demonstration of excavation and backfill procedures. Copies of maintenance procedures were provided to property owners and utility companies, and are also available at EPA's outreach office that is maintained on site


Owners of properties that were not part of the response action received a letter and fact sheet from EPA stating that maintaining the surface vegetation will minimize the potential exposure to contaminants in the subsurface soils and will prevent soil erosion. The letter also informed the residents that the contaminants of concern do not readily dissolve in water, but adhere to soil particles. Thus, in the event of a flood, the contaminants in the subsurface soil are expected to remain in place and not pose an additional exposure to the residents.

**VIII. FIVE-YEAR REVIEW**

Previous response actions implemented on OU1, OU2, and OU3, have eliminated the need for further remedial response on these operable units. Thus, no further remedial actions for OU1, 2, and 3 are necessary to ensure protection of human health and the environment. The selected remedy complies with Federal and State requirements that are applicable or relevant and appropriate to the response action, is cost-effective, and utilizes permanent solutions

Because hazardous substances, pollutants, or contaminants remain onsite in subsurface soil below one and two feet, above levels that allow unlimited use and unrestricted exposure, as a matter of policy, EPA will conduct at least one five year review, to ensure that the implemented action is protective of human health and the environment

Approved By:

  
\_\_\_\_\_  
Gregg A. Cooke  
Regional Administrator  
U.S. EPA Region 6

4-07-02  
Date

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