FINAL SUBMISSION

REMEDIAL ACTION WORK PLAN FOR LANDFILL REMEDIATION OF SIDNEY LANDFILL SITE SIDNEY CENTER, NEW YORK

Prepared for:

Sidney Landfill Respondents
Amphenol Corporation
and AlliedSignal, Inc.

Prepared by:

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Project Number: 2226-08

MARCH 1999

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This document meets standards prescribed in project planning documents and has been reviewed by qualified professionals.

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SIDNEY CENTER, NEW YORK

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this Remedial Action Work Plan (RAWP) is to identify and describe the tasks necessary to implement remedial actions at the Sidney Landfill Site (Site). Remediation at the Site will be conducted in general accordance with the procedures described in this document; however, the Contract documents, including the project drawings and specifications shall act as the requirements.

This document is organized as follows: Section 1.0 is an overview of past Site activities, and regulatory requirements; Section 2.0 presents the Remedial Action Contractor's (RAC) organization for the project; Section 3.0 discusses the specific work to be completed as part of the remedial action at the Site; Section 4.0 presents specific decontamination procedures; and Section 5.0 explains the requirements for a final report at the end of the project.

This RAWP has been developed as part of the remedial design. It is the intent that the RAWP be modified by the RAC to include the RAC's specific work procedures, organization, and sequencing. As such, some details in this report are left for the RAC to complete and are noted in brackets. Modifications to this plan will be subject to approval by the USEPA and the Engineer (the designated construction oversight Engineer).

1.2 SITE BACKGROUND

The following subsection provides a brief description and history of the Sidney Landfill Site.

1.2.1 Site Description and History

The Sidney Landfill Site is located in the Towns of Sidney and Masonville, Delaware County, New York. The landfill is situated on the western slope of Richardson Hill on the east side of Richardson Hill Road. The total area of the Site is approximately 74 acres and ranges in elevation from 1,800 feet above mean sea level (msl) at the base of the landfill to 2,120 feet above msl at the top of the hill.

Reportedly, the Site began operating as a landfill in December, 1967, and continued operations until October, 1972 when the Town of Sidney began sending it's waste to a landfill in Chenango County (US Environmental Protection Agency [USEPA], 1996). The Site was reportedly used for the disposal of municipal waste from the Town of Sidney and solid wastes from the former Bendix Corporation (currently Amphenol Corporation). Landfilling was conducted at six distinct areas; the Can and Bottle Dump Area, White Goods Disposal Area, Alleged Liquid Waste Disposal Area, North Disposal Area, Southeast Disposal Area, and the Southwest Disposal Area. The New York State

1.2.2 Selected Remedy

The major components of the selected remedy include the following:

- Excavation of debris from the Can and Bottle Dump Area and White Goods Disposal Area "B" and relocation into the adjacent North Disposal Area.

- Construction of four independent landfill cover systems over the North Disposal Area, the White Goods Disposal Area "A" and the Alleged Liquid Waste Disposal Area, the Southeast Disposal Area, and the Southwest Disposal Area.

- Installation of a hot spot groundwater extraction and treatment system in the vicinity of MW-2S (not part of this contract).

These activities will reduce potential threats to the environment by reducing the mobility and availability of Site contaminants to potential receptors. Capping will reduce infiltration of precipitation into the waste and the subsequent leaching of contaminants to groundwater. Groundwater extraction and treatment will reduce the existing groundwater contamination.

Since residual waste will be left on site, the final remedy will also include:

- Access restrictions (fencing),

- Institutional controls to minimize land and groundwater use, and

- Environmental monitoring.

1.3 OBJECTIVES

The objectives to be met for this phase of the remediation of the Sidney Landfill Site include:

- Access road improvement and installation of stormwater and erosion and sediment control measures.

- Excavation of wastes within two can and bottle disposal areas and relocation and consolidation within the existing North Disposal area to be covered.

- Excavation of wastes within the White Goods Disposal Area "B" and relocation and consolidation within the existing North Disposal area to be covered. White Goods Disposal

Area "B" consists of a small isolated area of white goods debris located approximately 100 feet south of the North Disposal Area.

- Excavation, hauling, and placement of common borrow fill to develop the landfill cover slopes.
- Construction of landfill caps consisting of a 6 inch vegetative soil layer overlying 24 inches of barrier protection soil, a 60 mil polyethylene geomembrane, and a 12-inch soil gas venting layer.
- Construction of perimeter chain-link fencing.
- Establishing vegetation on all disturbed areas.

1.4 APPLICABLE, RELEVANT, AND/OR APPROPRIATE REQUIREMENTS

Applicable, relevant, and/or appropriate requirements (ARARs) are generally divided into three categories: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs are particular to individual contaminants and are not discussed as part of this work plan. Location-specific ARARs depend upon the location of the contamination and potential restrictions on activities conducted in these areas (i.e., wetlands, floodplains, etc.) and no applicable requirements have been identified. Action-specific ARARs, as the name implies, govern the remedial actions. Action-specific ARARs are usually technology- or activity-based directions or limitations that control action taken at CERCLA sites.

1.4.1 ARARs

The ARARs, which must be attained or considered as part of the remediation scope at the Sidney Landfill Site, are presented in the Table 1-1.

1.4.2 Other Criteria, Advisories, or Guidance to be Considered

This section lists the guidance documents that have potential to affect implementation of remedial action activities.

Table 1-1
Summary of Potential ARARs
Sidney Landfill Site
Sidney, New York

Status	Citation	Comments
	GENERAL SAFETY	
A	OSHA – General Industry Standards (29 CFR 1910)	These regulations specify the 8-hour time weighted average concentration for worker exposure to various organic compounds. Training requirements for workers at hazardous waste operations are specified in 29 CFR 1910.210.
A	OSHA – Safety and Health Standards (29 CFR 1926)	Specifies safety equipment and procedures to be followed during site remediation.
A	OSHA – Record Keeping, Reporting and Related Regulations (29 CFR 1904)	Outlines the record keeping and reporting requirements for an employer under OSHA.
A	OSHA (29 CFR Part 120)	This applies to employers and employees engaged at sites designated for cleanup and other RCRA or CERCLA related work. Establishes procedures for site characterization, control, and requirements for employee training and medical monitoring.
	HAZARDOUS WASTE	
A	RCRA – Preparedness and Prevention (40 CFR 264.30-264.37)	Outlines the requirements for safety equipment and spill control.
A	RCRA - Contingency Plan and Emergency Procedures (40 CFR 264.50-264.56)	Outlines the requirements for emergency procedures to be used following explosions, fires, etc.
A	RCRA – Groundwater Protection (40 CFR 264.90-264.109)	Presents requirements for a groundwater monitoring program to be installed at the site.
A	RCRA – Miscellaneous Units (40 CFR 264.600-264.999)	These standards are applicable to miscellaneous units not previously defined under existing RCRA regulations for treatment, storage and disposal units.
A	RCRA – Standards for Owners and Operators of Permitted Hazardous Facilities (40 CFR 264.10-264.18)	Presents requirement for construction, operation, fencing, and posting of facilities.

Table 1-1 cont'd.
Summary of Potential ARARs
Sidney Landfill Site
Sidney, New York

Status	Citation	Comments
A	RCRA – Manifesting, Recordkeeping, and Reporting (40 CFR 264.70-264.77)	Records of facility activities shall be developed and maintained during facility operations. Regulation specifies the record keeping and reporting requirements for RCRA facilities.
A	RCRA – Closure and Post-closure (40 CFR 264.110-264.120)	
A	RCRA (40 CFR 264.178)	Closure requirements/Decontamination of all residues and equipment.
RA	RCRA (40 CFR 264.310)	Landfills, closure and post-closure care.
A	RCRA – USEPA Regulations on land disposal restrictions (40 CFR 268)	This regulation outlines the LDRs (land disposal restrictions) and other restrictions pertaining to hazardous waste.
RA	RCRA (40 CFR 270 Subpart B)	This part defines the required contents of a RCRA hazardous waste management permit application. The substantive requirements of these provisions are relevant and appropriate.
RA	RCRA (40 CFR 270 Subpart C)	This regulation establishes permit conditions, including monitoring, recordkeeping requirements, operations and maintenance requirements, sampling and monitoring requirements. Although no RCRA permit is required for activities conducted entirely on site, the substantive requirements of these provisions are relevant and appropriate.
A	6NYCRR Part 373-2.19	Defines Corrective Action Management Units (CAMUs)
A	40 CFR 264.552	Defines Corrective Action Management Units (CAMUs)
A	40 CFR 6 Appendix A, Fish & Wildlife Act 16 USC 661	Actions within floodplain/lowland/flatland must minimize potential harm
	SOLID WASTE	
A	Solid Waste Management Facilities	Regulation of solid waste management facilities other than hazardous-waste facilities subject to

Table 1-1 cont'd.
Summary of Potential ARARs
Sidney Landfill Site
Sidney, New York

Status	Citation	Comments
	(6NYCRR Part 360)	other specific NYS regulations.
TBC or RA	Guidelines for Land Disposal of Solid Wastes (40 CFR 241)	These regulations pertain to the land disposal of all solid waste, excluding hazardous waste.
RA	Criteria for Classification of Solid Waste Disposal Facilities and Practices (40 CFR 257)	These criteria are for RCRA use to determine the potential adverse effects on health or the environment by solid waste disposal facilities and practices.
A	40 CFR, Subpart N (Landfills) and Subpart G (Closure and Post-Closure)	On-site disposal of hazardous waste.
A	40 CFR, Part 264, Subparts AA, BB, and CC	Provides guidance for venting of gases and for any emissions produced by the exhuming of landfilled waste.
RA	Solid Waste Management Facilities (6 NYCRR Part 360)	Regulates design and operation of solid waste facilities in the State of New York.
	GROUND/SURFACE WATER	
RA	40 CFR 122.41	Discharge monitoring requirements (liquid) to creek (NPDES).
A	Groundwater monitoring regulations under (40 CFR Put 264, Subpart F)	These standards provide guidance for well construction and placement, sample collection and analysis procedures applicable to the remedial action.
RA	Executive Order #11990 Protection of Wetlands	Minimize adverse effects to wetlands and to minimize support of wetland development.
A	Clean Water Act Section 402, 33 U.S.C. 1342. (NPDES)	Regulates water quality discharged to surface waters, Federal.

Table 1-1 cont'd.
Summary of Potential ARARs
Sidney Landfill Site
Sidney, New York

Status	Citation	Comments
A	Groundwater and Surface Water Quality Regulations (6 NYCRR Part 700-705)	Provides guidance for groundwater and surface water classifications, standards and guidance values, quality standards and effluent.
RA	Permit Discharge Elimination System (SPDES) (6 NYCRR Part 750)	Regulates water quality discharged to surface waters, State of New York.
	AIR	
A	CAA – NAAQS for total suspended Particulates (40 CFR 129.105,750)	This regulation specifies maximum primary and secondary 24-hour concentrations for particulate matter.
A	NESHAP and National Ambient Air Quality Standards (40 CFR 61)	Air emissions standards.
TBC	New York State AIR GUIDE 1	Guidelines for control of Toxic Ambient Air Contaminants – used to assess impact of air emission sources.
A	Air Quality Standards (6NYCRR Part 257)	Provides for protection from the adverse health effects of air contamination.
A	Fugitive Dusts (6NYCRR Part 373)	Applies to dust generation during construction.
	TRANSPORTATION	
A	DOT rules for transportation of hazardous materials (49 CFR Parts 107, 171-179)	This regulation outlines procedures for the packing labeling, manifesting, and transporting of hazardous materials.
RA	New York Hazardous Waste Manifest System Rules (6NYCRR Part 372)	This regulation outlines New York State manifesting requirements.
RA	New York Hazardous Waste Treatment, Storage and Disposal Facility Permitting requirements (6 NYCRR 370 and 373)	This regulation outlines general waste facility requirement, general waste analysis, security measures, inspections and training requirements.

Table 1-1 cont'd.
Summary of Potential ARARs
Sidney Landfill Site
Sidney, New York

Status	Citation	Comments
RA or TBC	New York Industrial Code Rule #53 (12 NYCRR753)	This regulation specifies the notification requirements for buried pipeline.
A	New York Waste Transport Permit Regulations (6NYCRR Chapter 364)	This regulation governs the collection, transport, and delivery of regulated waste originating or terminating within New York State.
ARCHEOLOGICAL		
RA	32 CFR PART 229, 229.4; 43 CFR Parts 107, 171.1-171.5	This regulation develops procedures for the protection of archeological resources.

Notes:

A = Applicable
RA = Relevant and Appropriate
TBC = To be considered

- Local building codes and requirements.
- New York Guidelines for Soil Erosion and Sediment Control.

1.5 DOCUMENT REVISION

This RAWP has been developed as part of the design. It is the intent that the RAWP be modified by the RAC to include the RAC's specific organization, work procedures, and sequencing. The procedures described in this document may be modified by the RAC provided the modified procedures are still in compliance with the Project Specifications. The revised RAWP will be subject to approval by the Engineer and regulatory agencies. It is expected at a minimum that the RAC will provide additional information where indicated.

2.0 ORGANIZATION OF PROJECT

This section discusses the approach to organizing this remedial action.

2.1 TASKS

The following activities will be performed as part of this phase of the Sidney Landfill remediation:

- Installing erosion and sedimentation controls.
- Clearing and grubbing the Site.
- Installing exclusion fencing around the landfill.
- Upgrading access road.
- Removing wastes within two can and bottle disposal areas and one isolated white goods disposal area (located approximately 100 ft. south of the North Disposal Area) and relocation and consolidation within the existing landfill limits to be covered.
- Regrade and/or fill landfills to develop landfill design grade.
- Installing gas venting system.
- Installing a layered geosynthetic and soil cap in four independent areas.
- Revegetate all disturbed areas.

2.2 MANAGERIAL APPROACH TO CONSTRUCTION [RAC to Develop]

2.3 PERSONNEL - DUTIES AND RESPONSIBILITIES

2.3.1 Remedial Action Contractor Responsibilities

The RAC's project responsibilities include:

- Maintain a safe work site.

- Apply for and obtain permits.
- Prepare pre-construction plans and documents.
- Perform the remedial activities required under the contract.
- Prepare cost-impact statements for all modifications and/or cost over-runs.
- Initiate, maintain, and supervise all safety precautions and programs in connection with the work.
- If conflict, error, or discrepancy is found in contract documents, report to the Engineer in writing.
- Notify the Engineer in writing of any subsurface or latent physical conditions encountered which differ materially from those specified or indicated.
- Interact with the representatives of government agencies.
- Implement the Construction Quality Assurance Project Plan (CQAPP) and establish chain of command.
- If material or equipment, or specific means, methods, techniques, sequence, or procedure of construction is indicated in or required by the contract documents, furnish or utilize a substitute acceptable to the Engineer, if needed.
- Procure subcontractor services; submit these services to the Engineer.
- Implement environmental protection procedures and provisions as specified.
- Maintain two record copies at the Site of all as-built drawings; and one copy of specifications, addenda, written amendments, change orders, work directive changes, field test records, field orders, and written interpretations and clarifications. Upon completion of the work, deliver these records to the Engineer.

2.3.2 Responsibilities of the RAC's Project Team [To Be Completed by the RAC]

The remedial action at the Site will be led by a project-dedicated team, as shown on Figure X-X [to be developed by RAC]. The organization chart (Figure X-X [to be developed by the RAC])

defines the primary "chain of command" and defines who is responsible for the management and completion of the overall project and the primary components of design and remediation.

The Project Manager will have the overall responsibility for project efforts including technical, schedule, and budget aspects. The Project Manager will be responsible for the day-to-day management and integration of all elements of the project and will be accountable for each activity. Supporting the Project Manager will be the Site Superintendent, Site Safety Officer, Site Foreman, Project Accountant, Subcontractors and other support personnel as needed.

Separate from the project management chain of command is the quality control (QC) chain of command under the direction of the QC Representative. The QC Representative will work independently of the RAC's project team.

There is also a requirement that remedial action activities will be performed under the direction and supervision of a qualified New York State licensed professional engineer and meet all requirements of applicable federal and state laws.

Responsibilities and authority of the Project Manager and supporting field personnel that are fundamental to the project are discussed in the following sections. Responsibilities and authority of the QC Representative are discussed in Section 2.3.8.

2.3.3 Project Manager

The Project Manager is the person in charge of the overall project and has full authority for coordination and direction of the project. The Project Manager will communicate directly with the Engineer. Specific responsibilities of the Project Manager include:

- Maintain a safe working environment.
- Interpret and plan overall work effort.
- Approve work products, plans, and deliverables.
- Overall responsibility for preparation and planning the work.
- Respond to resource requirements by defining resource needs and securing the commitments for staff and equipment.
- Monitor subcontractor performance, schedules, budgets, and invoices.

- Develop, review, and meet work schedule and budget objectives.
- Ensure technical adequacy of field, laboratory, data management, and construction activities.
- Prepare for and attend meetings with the Engineer and government agencies, as required.
- Manage and coordinate group interfaces.
- Document the need for contract modifications, if needed.

To carry out these functions, the Project Manager will have the authority to:

- Make work assignments for staff and subcontractors.
- Allocate additional personnel as needed.
- Establish work budgets and schedules with milestones.
- Approve subcontractor work and invoices.
- Communicate with the Site Superintendent regarding day-to-day activities, and alert the program manager and/or the Project Technical Lead to potential problems.
- Maintain RAC quality standards.

2.3.4 Site Superintendent

The Site Superintendent is the RAC contact at the Site and is responsible for performing the remediation activities in accordance with the work plan and other project plans and specifications. The Site Superintendent's responsibilities include, but are not limited to:

- Implementing the day-to-day aspects of the Health and Safety Plan (HASP).
- Coordinating engineering activities at the Site as directed by the Project Technical Lead or Project Manager.
- Managing the day-to-day execution of the project at the Site, including administrative and procurement activities.
- Monitor work progress and schedule, and advise Project Manager of variances.

- Implementing state and federal regulations pertinent to the work.
- Assisting in preparation of work progress schedules, project reports, "as-built" drawings, and required compliance submittals.
- Compiling the daily logs into a weekly report, which will be forwarded to the Project Manager.
- Attending work progress meetings.
- Reporting changes desired in the contract documents to the project manager so that required review and approval can be accomplished prior to when the change is made, and reporting, for review and approval, changes necessitated by unanticipated Site conditions.
- Procuring, with approval of the Project Manager, subcontractor services.
- Ensuring that remedial rework is subjected to the same quality requirements as the original work.

2.3.5 Site Safety Officer

The Site Safety Officer (SSO) is responsible for implementing the HASP. The HASP must satisfy federal, state, and local regulations, project contract documents, and must be consistent with Site conditions. The SSO may take actions independent of the project group to stop the project, if required, for compliance with the HASP.

The Site Superintendent is responsible for the day-to-day implementation of the HASP during Site activities. The SSO will oversee this day-to-day implementation, and have the following responsibilities:

- Approving the personal protective equipment (PPE) and safety procedures specified in the HASP.
- Overseeing the maintenance and use of field monitoring equipment necessary to define on-site hazards associated with remediation.
- Overseeing the implementation of the Community Health and Safety Plan.

- Designating appropriate personal protection level; determining protection level upgrades and downgrades as Site conditions permit.

- Providing necessary guidance to the project staff so they can safely perform their functions in accordance with federal and state regulations.

2.3.6 Quality Control Personnel [To Be Completed by RAC]

The Program QC responsibilities for this project will be assigned to personnel as shown on Figure XX. The Program QC Manager is [to be determined by RAC] and the on-site QC Representative is [to be determined by RAC].

The QC Representative is independent of the Site project chain of command, reports to the Program QC Manager, and works with the Engineer. The RAC will also employ a third-party geotechnical testing subcontractor to perform some of the QC monitoring and testing tasks. The responsibilities of this subcontractor are described in detail in Section 2.3.9 of this plan.

The QC Representative is responsible for coordinating inspection and surveillance activities. The QC Representative will monitor the full Site activities on a periodic basis. The results of inspections and surveillance's will be documented in a report describing the events reviewed that day. The QC Representative will also be responsible for:

- Reviewing results of on-site verification testing and inspection reports.

- Implementing appropriate provisions of this plan.

- Serving as the collection point for remediation-related nonconformance documentation.

- Performing, or causing to be performed daily inspections and tests of the scope and character necessary to achieve the quality of construction outlined in the plans and specifications for work under the contract performed on or off site.

- Maintaining the latest applicable drawings and specifications with amendments and/or approved modifications at the job site and assure that they are used for shop drawings, fabrication, construction, inspections, and testing.

- Maintaining marked-up drawings at the Site, depicting as-built conditions. The drawings will be available for review by the Engineer at all times.

- Maintaining a RAC-generated submittal register for the duration of the contract. A review of the register will be performed at least every month in conjunction with the scheduled dates on the register and in relation to the actual work status. Appropriate actions will be undertaken should slippages or other changes so necessitate.

- Reviewing shop drawings and/or other submittals for compliance with the contract requirements prior to their transmission to the Engineer.

- Establishing and maintaining a Rework Item List of work that does not conform to specifications. The QC Representative will track and monitor the items on the list to assure the rework inspection and testing activities and frequencies are in accordance with the contract requirements.

- Attending and assisting the Engineer at the pre-final inspection and the final acceptance inspection.

2.3.7 Geotechnical Testing

The RAC will subcontract a geotechnical testing firm to perform the following duties:

- Collect samples and perform all required soils and construction material laboratory testing.

- Collect samples and perform all required laboratory testing during geomembrane installation.

- Perform all required on-site QA/QC monitoring during soil placement and geomembrane installation.

The RAC will submit a copy of the selected subcontractor's QA plans which are to be included in the appendices of the final version of the CQAPP. These plans include the "Contract Laboratory Quality Assurance Plan" and the "Contract Laboratory Field Analytical Quality Assurance Plan." The QA/QC procedures of the selected geotechnical testing subcontractor will be described in detail in these plans.

3.0 DESCRIPTION

The following sections discuss the tasks to be performed as part of the remediation work at the Site.

3.1 SITE PREPARATION

This section provides detailed information on the tasks involved in preparing the Site for construction, including mobilization, clearing and grubbing, temporary facility placement, and work zone demarcation.

3.1.1 Mobilization

The RAC will mobilize the personnel, equipment, and resources necessary to complete the project as defined in this Work Plan. As other activities are begun, additional personnel will be mobilized to the Site. Subcontractors will be mobilized as they are needed.

3.1.2 Temporary Facilities

The RAC will establish an office trailer at a location to be determined by the RAC. Sanitary facilities will be established at the office trailer site. Adjacent to the RAC's office trailer will be a trailer for the Engineer, provided by the RAC.

3.1.2.1 Project and Other Signage. The RAC will place appropriate warning signs throughout the various sites where pedestrian and driver safety is in danger and in the areas of work to establish both controlled zones and Site hazards. The RAC will take sufficient precautions and provide warning signs and/or flagmen during mobilization of larger pieces of equipment.

3.1.2.2 Work Zones and Temporary Fences. The RAC will mark all work zones, contamination reduction zones (CRZ), and exclusion zones (EZ) in accordance with Occupation Safety Health Administration (OSHA) guidelines. All specific work zones will be delineated with orange plastic fencing with metal posts and appropriate warning signs will be strategically placed. Caution tape, roping, and other fencing devices will be used as specific project tasks require. Permanent fencing that must be removed for construction of pipe trenches will be temporarily replaced, every night, until construction in the area is completed; then the fencing will be permanently reinstalled.

3.1.2.3 Perimeter Air Monitoring. At a minimum, perimeter monitoring will be performed three times daily during the morning, midday and afternoon for both noise and air emissions. Air emission monitoring will be performed at three downwind locations along the property

boundary. The locations are approximate and may be moved from day to day depending on prevailing wind conditions and position of the work activity relative to the nearest residential dwellings. In cases where air emission contamination is detected during remedial activities, continuous perimeter air monitoring will be required to assure that off-site migration of organic vapors and dust is not occurring. Perimeter monitoring will include measurements for noise, dust and organic vapor concentrations. The following lists the type of equipment and action levels established for site perimeter monitoring:

Parameter	Monitoring Equipment	Action Level	Guidance Reference
Organic Vapors	Organic Vapor Meter (PID)	5 ppm	New York State Dept. of Health Guidance- Draft Community Air Monitoring Plan, 1992
Dust	Real-time Particulate Monitor	150 mg/m^3	New York State Dept. of Environmental Conservation TAGM on Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, Oct. 1989.
Noise	Sound Level Meter	85 dBA	OSHA - 29 CFR 1910.95

Note:

ppm parts per million
PID photoionization detector
mg/m^3 micrograms per cubic meter
dBA decibels-A-weighted scale

If any perimeter measurements exceed the action level, work will be stopped so that appropriate control measures can be instituted. Daily perimeter measurements will be recorded in a designated on-site log book.

3.1.4 Erosion and Sedimentation Control Measures

The RAC will install erosion and sedimentation controls as described in the details and specifications on Drawing Nos. C-102, C-103, and C-304. Temporary erosion and sedimentation controls include silt fence, hay bales, and stone check dams. Silt fence will be installed prior to any earthmoving activities. The silt fence, hay bales, and stone check dams will be installed at the locations as specified on the Site plans. The RAC will inspect all temporary erosion and sedimentation control structures on a biweekly basis and after every significant storm event to ensure that the structures are still intact and providing effective control. The RAC will remove

accumulated sediments when their height reaches one-half the height of the control structure or when the structure's efficiency is impacted by the collected sediments.

The RAC will control the rate of run-on to the soil stockpiles and excavation areas by means of silt fences and diversion structures. Sediment from runoff from disturbed areas will also be collected by the silt fence surrounding all excavation areas.

Permanent control measures include drainage ditches, diversion channels, level spreaders, and seeding and mulching.

3.1.5 Upgrade Access Road

The RAC will upgrade/construct sections of the access road as required to comply with the project specifications. This will include the installation of corrugated metal pipe (CMP) culverts, and the placement of fill and gravel treatment on the seasonal jeep trail as shown on Drawing No. C-104, C-105, and C-303. The RAC will maintain the gravel surface on the access road throughout the project duration.

3.2 REMOVAL ACTIONS

The materials removed from the can and bottle dump areas and the white goods disposal area will be transported to North Disposal Area for disposal under the landfill cap. The following sections describe the tasks included in the removal actions at these sites.

3.2.1 Removal Activities for Can and Bottle Dump Areas and White Goods Disposal Area "B"

The activities for the Can and Bottle Dump areas and the White Goods Disposal Area "B" include the removal of the waste for relocation to the North Disposal Area . The depth of the excavation is assumed to be approximately 5 feet, however, excavation will proceed until the bottom of the waste is encountered. White Good's Disposal Area "B" was identified during the Pre-design Investigation. The area is located approximately 100 ft. south of the North Disposal Area and is distinctly separate from the White Goods Disposal and Alleged Liquid Disposal Areas to be capped.

The removal activities common to all sites include the following:

- Survey the Site to define the disposal area.
- Install erosion controls.

- Construct the Site entrance and temporary access road to the Site.
- Set up decontamination areas, CRZ, and the work zone.
- Excavate overburden and stockpile on site.
- Excavate waste and, in some cases, the portion of surrounding soil.
- Load excavated waste into dump trucks for transport to the North Disposal Area.
- Perform confirmation sampling and analysis of soils in the removal zone.
- Backfill/regrade excavated areas, remove temporary access road, and restore Site.
- Final survey of the Site.
- Revegetate area.

3.2.1.1 Site Survey. The Site will be surveyed prior to disturbance to prepare and accurate depiction of the existing ground surface. This survey will be used to determine excavation quantities and for returning the Site to pre-construction conditions after backfilling.

3.2.1.2 Clearing and Grubbing. The RAC will clear and grub the Can and Bottle Dump Areas and White Goods Disposal Area "B" as necessary. The RAC will chip and spread or remove from the Sites and properly dispose off-site only vegetation that impedes or interferes with the safe and effective implementation of the tasks and requirements of the Site work. This vegetation will include, but not be limited to, trees, weed growth, brush, logs, roots and leaves, as well as other debris. Any materials removed from the project Site will be disposed of at a designated off-site location approved by the Engineer.

3.2.1.3 Personnel Protection Equipment and Decontamination Areas. All personnel working in the excavation zone will be required to wear an appropriate level of PPE. The RAC will set up decontamination areas at the Site for equipment and personnel decontamination. All personnel working in the excavation zone will be required to go through the decontamination area at the end of their work shift. All discarded PPE will be bagged and sent to an approved off-site landfill for disposal.

3.2.1.4 Excavate and Remove Waste Materials. After delineating the excavation zone, the RAC will carefully excavate the overburden and waste material. The excavator will excavate and load the waste into dump trucks for transport to the North Disposal Area. The quantity of waste in each of the removal sites varies based on the areal extent as shown on the drawings and the estimated depth.

In cases where the excavation of waste has not been completed by the end of the working day or if precipitation begins during the work day, the excavation zone will be covered with a layer of 6-mil polyethylene and secured.

In addition to the excavated waste, the RAC will also collect the drums of PPE from the RI/FS activities that are located as shown on the drawings. These drums will be compacted and placed in the North Disposal Area along with other excavated wastes.

3.2.1.5 Backfilling and Final Grading. Once the excavation zone has been completed, the excavation area will be surveyed to determine the excavated quantity. The excavation will be backfilled with material from the overburden stockpile. After backfilling, the area will be graded to provide drainage.

3.2.1.6 Final Survey and Revegetation. After grading is completed, the area will be surveyed to determine the final grades. The Site will then be revegetated with the required seed mixtures as specified in the project specifications.

3.3 LANDFILL REMEDIATION AND CAP

The remediation activities at the disposal areas to be capped include the following:

- Clear each landfill surface of trees.
- Remove gas probes.
- Place and compact waste and debris from Can and Bottle Dump Areas and White Goods Disposal Area "B" in the North Disposal Area.
- Operate a decontamination pad for the trucks hauling waste and other equipment.
- Place and compact common fill on the landfill surface to achieve the landfill subgrade elevations.
- Layout and install gas vent riser.
- Place and compact gas vent material.
- Install the high density polyethylene (HDPE) geomembrane liner.
- Place barrier protection layer on top of the landfill geomembrane liner.
- Install perimeter drainage piping.
- Place and compact vegetative material.
- Restore roadways and appurtenances.
- Revegetate landfill cap.
- Install perimeter fence.
- Site cleanup and demobilization.

The following sections describe the tasks required to remediate the Site and install the landfill cap.

3.3.2 Clearing and Grubbing

The RAC will clear and grub the work areas and adjacent laydown areas of vegetation. This vegetation will include trees, weed growth, brush, logs, roots and leaves, as well as other debris that will be disposed off-site.

3.3.3 Installation of Settlement Platforms

Prior to placing any common fill on the landfill, the RAC will install settlement platforms according to the project drawings and Section 02221 - "Excavation, Backfill, and Compaction" of the project specifications. The specified locations for the settlement platforms are identified on Drawing Nos. C-104 and C-105 and the detail is shown on Drawing No. C-302. The RAC may wish to establish settlement platforms and grade the waste in one disposal area and then work in another area while observations for settlement are made.

Settlement platforms will be surveyed by the RAC's Land Surveyor registered in the State of New York. The elevations of the settlement platforms will be surveyed as follows:

- Prior to common fill placement and once per week during common fill placement to meet subgrade elevations.

- Twice per month during construction activities preceding final capping of the landfill.

The RAC will provide the survey data to the Engineer for their use in evaluating and predicting settlement and to determine if the gas vent system can accommodate the predicted settlement. The Engineer will perform calculations to predict long-term settlement and verify that minimum slopes for positive drainage will be maintained over the long-term as required in 6 NYCRR Part 360.

Prior to the placement of cover materials, the settlement platform pipes will be removed as shown on the drawings. Settlement platform pipes will not be removed without prior approval by the Engineer.

3.3.4 Gas Probe Removal

The RAC will remove 4 gas probes from the North Disposal Area as shown on the drawings.

3.3.5 Place and Compact Waste from Can and Bottle Dump Areas and White Goods Disposal Area "B"

The RAC will place and compact waste and debris from these areas on the North Disposal Area to provide a more uniform grade. Any waste placed in the landfill will be covered with 6 inches of cover soil at the end of work day or when the disposal area is full. No waste will be left uncovered overnight.

3.3.6 Place and Compact Common Fill

Some areas of the Site will have to be regraded prior to the placement of common fill. If wastes are encountered during this work, the appropriate environmental controls and health and safety measures will be implemented in accordance with the RAC's Work Plan and Health and Safety Plan.

The RAC will place and compact common fill on areas of the landfill that have been previously proofrolled and filled. All common fill will be sampled and tested prior to placement to ensure that the material meets the requirements as specified in Section 02221- "Excavation, Backfill and Compaction" of the project specifications. The common fill will be used to bring the landfill surface up to the subgrade elevations as specified on Drawings Nos. C-104 and C-105. Common fill will be installed in lifts with a maximum thickness of 12 inches. The RAC will use bulldozers to grade the common fill to the specified subgrade elevations. The RAC will then use a smooth-drum vibratory roller to compact the common borrow to the density as specified in Section 02221 - "Excavation, Backfill, and Compaction", of the project specifications. This work will be coordinated with the placement of waste and debris from other areas. The elevation of the Site subgrade will be monitored by the surveyor.

3.3.7 Install Gas Ventilation Risers [To Be Completed by RAC]

After the subgrade has been established, the RAC will install the gas ventilation riser in the locations specified on Drawing No. C-104 and C-105.

After completing the subgrade the RAC will begin installation of the gas ventilation riser by boring into the waste as specified in Section 02611, "Pipe and Fittings." The gas collection piping will consist of 6-inch-diameter, perforated, corrugated, polyethylene pipe.

The following describes the procedure the RAC will use to install the gas ventilation riser as the cap is constructed.

[To be developed by the RAC]

3.3.8 Place Gas Vent Sand

After the landfill subgrade elevations are achieved and approved, the RAC will then install the gas vent sand. The purpose of the gas vent sand is to transfer landfill gas to the gas vents, thereby preventing the buildup of gas pressure underneath the geomembrane. The thickness of the gas vent sand will be monitored by the subcontracted surveyor.

3.3.8.1 Material Testing. The gas vent material will be tested for gradation, moisture-density relationships, and permeability. Sampling and testing will be performed by the RAC chosen independent geotechnical testing subcontractor. Source quality control measures will be followed according to Section 02221 - "Excavation, Backfill, and Compaction" of the project specifications. The gas vent sand is defined in Section 02221 - "Excavation, Backfill, and Compaction" of the project specifications.

3.3.8.2 Placement. The RAC will place the gas vent sand by pushing the material using a "surge wall" method to push ahead the material to the desired depth. The gas vent sand will be placed as one 12-inch lift. A low ground pressure bulldozer will be used to spread and grade material to the required lift thickness. The in-place density of the gas vent sand will be tested to ensure that the permeability of the layer is maintained at or above the minimum value specified in Section 02221 - "Excavation, Backfill, and Compaction" of the project specifications.

The RAC will maintain a daily log of measurements of lift checks, density tests, sand characteristics and other observations during cap layer placement. Depth checks will be performed by RAC field personnel or personnel of the RAC's QC Representative based on availability of personnel. A running average of 100 percent of the required thicknesses shall be maintained. Portions of the gas vent sand not obtaining the required compaction will be reworked until this is achieved.

3.3.8.3 Surveying. The RAC will conduct an intermediate survey(s) upon completion of the gas vent sand placement or portions of such to verify the elevations and layer thickness. The Engineer will be presented with the survey data of the gas vent sand for approval prior to proceeding with the geomembrane installation.

3.3.9 High Density Polyethylene Geomembrane

The RAC's geomembrane subcontractor will install the HDPE geomembrane as part of the cap system for the Site as specified in Section 02776 - "HDPE Geomembrane" of the project specifications.

3.3.9.1 Pre-Installation Requirements. Prior to the beginning of installation of HDPE geomembranes, the RAC and the geomembrane subcontractor will submit:

- A certificate that the surface preparation is acceptable for geomembrane placement.
- Manufacturer's and installer's experience information for approval before material shipment.
- Shipment warranty, manufacturer's and installer's warranties.
- QC testing reports before material shipment.
- Cold/wet weather installation and seaming procedures.
- Pre-installation panel layout with seam locations and details for approval before material shipment.
- Statements concerning manufacturer's qualifications, installer's qualifications, manufacturer's warranty, installer's warranty.

3.3.9.2 Materials. The RAC will use only HDPE meeting the requirements of Section 02776 - "HDPE Geomembrane" of the project specifications.

3.3.9.3 Base Preparation. The RAC will follow Section 02221 - "Excavation, Backfill, and Compaction" for base preparation. In general, the RAC will monitor the base on which the geomembrane will be placed and repair damage such as erosion, ruts from vehicular traffic and other surface irregularities which could cause harm to the geomembrane upon deployment. The HDPE will sit on the gas vent sand in the landfill.

3.3.9.4 Placement. The HDPE geomembrane installation will follow the gas vent sand installation. The RAC's geomembrane subcontractor will follow all requirements of Section 02776 - "HDPE Geomembrane" of the project specifications. In general HDPE will only be placed when Quality Assurance/Quality Control personnel are present. Geomembrane will be placed in such a manner to minimize handling, damage, wrinkles or repairs. Only that HDPE which can be placed, anchored, seamed, or covered in a day, will be placed on any given day. Standard geomembrane installation procedures will be followed when the ambient air temperature is between 40 to 105 degrees Fahrenheit. When ambient temperatures are above or below this temperature range, placement and seaming will proceed with caution applying appropriate constraints, approved by the Engineer, to ensure quality seams.

3.3.9.5 Seaming. The RAC's geomembrane subcontractor will follow all requirements of Section 02776 - "HDPE Geomembrane" of the project specifications. In General, all seams not around patches or appurtenances will be fusion (double hot wedge) welded. In general, all seams

will be cleaned according to manufacturer's recommendations and will be aligned parallel to slope. Seam overlaps will be a minimum of 4 inches. Grinding of seams will be accomplished in accordance to the manufacturer's instructions and will not cause damage to the geomembrane.

When seams are parallel to the toe of slope, the higher elevation geomembrane will overlap the lower elevation geomembrane. The number of seams will be minimized in corners and odd-shaped geometric locations. All seams that are parallel to the toe of slope will not be less than 5 feet from the toe of slope.

Each seaming unit will include a thermometer giving machine temperature at the metal surface. The temperature of all seaming units will be monitored at all times during the seaming process. The welding temperatures of the seaming unit will not vary more than 50 degrees Fahrenheit above or below recommended operating temperatures.

Seam wrinkles will be cut out along the top of the wrinkle and the panels will be overlapped for a flat surface. The overlap must be greater than 3 inches. Where the overlap is less than 3 inches, the cutout will be patched with an oval or round patch extending a minimum of 6 inches in all directions.

3.3.9.6 Patching. The RAC's geomembrane subcontractor will follow all requirements of Section 02776 "HDPE Geomembrane" of the project specifications. In general, extrusion or wedge welds will be used to bond materials. All seams will be appropriately cleaned and ground for patching. All patches will be oval or round extending to a minimum of 6 inches beyond the hole in all directions.

3.3.9.7 Pipe Boots, Gas Vents, and Patches (Appurtenances). The geomembrane subcontractor will construct mechanical fastenings and sealing details as shown on the drawings and according to manufacturer's instructions to provide a watertight seal.

3.3.9.8 Field Quality Control/Quality Assurance. The RAC's geomembrane subcontractor and the RAC will follow all requirements of Section 02776 "HDPE Geomembrane" of the project specifications. The RAC will employ personnel from the selected geotechnical testing subcontractor as QC representatives to monitor the QC in the field. Any reference to QC representative in this section refers to the personnel from the selected geotechnical testing subcontractor. The RAC's QC representative will be responsible for the following duties:

- Review the manufacturer's quality control certificates for each roll of HDPE delivered to the Site.

- Monitor each roll of HDPE for defects and alert the RAC, the installer, and the Engineer or his representative.

- Observe all non-destructive seam tests.

- Perform non-destructive testing, destructive testing, cut HDPE coupons and mail samples to the chosen independent laboratory.

- Conduct photographic documentation.

- Document installation such as panel log placement, seam testing, inspections log and liner repair log.

The QC Representative will visually inspect all geomembrane panels and seams in-place for holes, blemishes, pores, penetrations or other imperfections that affect the integrity of the liner. The QC Representative will also observe and record the result of all field tests of seams.

Test welds for the seaming machines will be performed at a minimum of 3 times per day. The purpose of the test welds is to test the quality of the seams that the seaming unit produces prior to actual seaming. Test welds will be performed as stated in Section 02776 "HDPE Geomembrane" of the project specifications. Each time a test weld is performed, the test weld will be divided into 12-inch coupons for distribution to the geomembrane subcontractor and the QC for testing and to the Engineer for project files. Each sample coupon will be labeled with test weld date, time, ambient temperature, welding machine number, and operator's name. The geomembrane subcontractor will perform the field test on the test welds and the QC Representative will record the results.

Dual hot wedge welders develop two welds separated by an air channel. Any seams produced by a dual hot wedge welder will be tested in the field using an air pressure technique as described in Section 02776 "HDPE Geomembrane" of the project specifications. Air pressure will be applied to the air channel and the pressure will then be monitored. A steady drop in air pressure over the given time period will indicate a leak along the seam. The air pressure test will be performed by the geomembrane subcontractor and the QC Representative will observe and record the results. Any leaks will be repaired by extrusion welding and vacuum tested.

All extrusion seams will be tested for leaks using the vacuum test method as described in Section 02776 "HDPE Geomembrane" of the project specifications. A soapy solution is applied to seam and the vacuum box is placed over the seam. A vacuum is then applied for 30 seconds. The appearance of bubbles in rapid succession indicates a leak. The geomembrane subcontractor will perform all vacuum tests under the observation of the QC Representative.

The QC Representative will take destructive samples along the seams at a frequency of 1 sample per 500 feet of welded seam, or at a minimum of 1 per seam, including patches on a seam. The weld sample will be cut into 12-inch samples and distributed to the geomembrane subcontractor and the QC Representative for testing and to the Engineer for project files. All destructive tests will be performed as described in Section 02776 "HDPE Geomembrane" of the project specifications. Each sample coupon will be labeled with the date, location of sample, orientation with respect to machine direction, and welding machine number.

The geomembrane subcontractor will provide a technical representative at the job site to ensure compliance when the installation begins, when it is substantially complete and after written notification from the Engineer has been issued stating that the work or progress of work is unsatisfactory. The technical representative will also observe work and document (written) any unsatisfactory conditions to the Engineer.

3.3.9.9 Seam Repair. Seams failing destructive or non-destructive tests will be repaired and retested according to Section 02776 "HDPE Geomembrane" of the project specifications.

3.3.9.10 Defects and Repairs. The RAC will monitor all seams for defects or damage inflicted for any reason. The Engineer and the QC Representative will observe any damages with the RAC. Non-destructive tests on seams and panel areas suspected of being damaged will be performed with repairs being made, if required, according to the specifications.

3.3.9.11 Cleanup and Acceptance. The RAC will be responsible for the HDPE placement until all of the following have occurred:

- Installation is substantially complete according to the Engineer.
- Verification of the integrity of all field seams, repairs and retests.
- Certificates such as the As-built panel layout has been given to the Engineer.
- The Certificates of Substantial Issuance has been given to the RAC.

The RAC and the geomembrane subcontractor will dispose of all trash and waste off-site, remove all excess equipment, and leave the work area in an acceptable condition to the Engineer or clean it until such a condition exists.

3.3.10 Barrier Protection Soil

The RAC will pace a 24-inch layer of barrier protection soil over the geomembrane layer. The work will begin immediately upon receiving approval on the underlying geomembrane layer.

3.3.10.1 Material Testing. The material to be used for barrier protection soil will be tested for gradation, moisture-density relationships, and permeability. Sampling and testing will be performed by the RAC's chosen independent geotechnical testing subcontractor. The material requirements for the barrier protection soil are defined in Section 02221 "Excavation, Backfill, and Compaction" of the project specifications.

3.3.10.2 Placement and Compaction. The barrier protection soil will be imported by the RAC from the off-site borrow source. The RAC will place the material using a "surge wall" method to push ahead the material to the desired depth. The barrier protection soil will be placed in two 12-inch lifts to protect the underlying geomembrane layer. A small low ground pressure bulldozer or equivalent will be used to spread and grade material to the required thickness. The in-place density of the barrier protection soil will be tested as specified in Section 02221 "Excavation, Backfill, and Compaction" of the project specifications.

The RAC will maintain a daily log of measurements of lift checks, density tests, gravel characteristics and other observations during barrier protection soil placement. Depth checks will be performed by RAC field personnel or personnel of the RAC's QC Representative based on availability of personnel. A running average of 100 percent of the required thicknesses shall be maintained. Barrier protection soil not meeting the compaction requirements will be reworked until this is achieved.

3.3.10.3 Surveying. The RAC will conduct an intermediate survey upon completion of the barrier protection soil placement or portions of such to verify elevation and thickness. The Engineer will be presented with the survey data for approval.

3.3.10.4 Perimeter Drain. The RAC will provide and install perimeter drainage piping in the drainage sand as located on Drawing Nos. C-106 and C-107 and a described in the Details of Drawing C-302. The RAC will use only those materials meeting the requirements of Section 02611 "Pipe and Fittings" of the project specifications.

3.3.11 Vegetative Layer

The RAC will install a 6-inch vegetative layer on top of the barrier protection soil. The vegetative layer will be comprised of a soil that meets the requirements as listed in the project specifications.

3.3.11.1 Material Testing. All material to be used as vegetative material will be tested for gradation, organic matter and soluble salts. Sampling and testing will be performed by the RAC's chosen independent soil testing service and an approved agricultural testing lab.

3.3.11.2 Placement of Vegetative Layer. Vegetative layer placement will begin immediately upon completion of the survey of the barrier protection soil and approval by the Engineer. As

sections of the landfill are completed and approved, the RAC will begin placement of the vegetative layer to minimize exposure of barrier protection soil. The RAC will use a bulldozer to place the material in horizontal lifts which will not damage underlying materials. The RAC will protect all finished surfaces from vehicular or pedestrian traffic and will correct all irregularities in the finished surface to eliminate depressions. The RAC will follow all requirements of Section 02221 "Excavation, Backfill, and Compaction" of the project specifications. Material will be placed in one lift with the final lift surveyed to assure final grades and layer thickness.

3.3.11.3 Surveying. The RAC will conduct a survey upon completion of the vegetative placement or portions of such to verify vegetative layer elevations and thickness. The Engineer will be presented with the survey data for approval prior to vegetating the landfill cap.

3.3.12 Vegetate Landfill Cap

The RAC's vegetation subcontractor will fertilize, seed, and mulch the landfill caps according to the specifications as stated on Drawing Nos. C-106 and C-107 and in Section 02930 "Turf" of the project specifications.

3.3.13 Installation of Landfill Fence

The RAC will install approximately 6,100 lineal feet of fencing plus four 10-foot-wide single swing gates and two 20-foot-wide double gates. The fence will be 6-foot chain link and will encompass the five separate disposal areas as shown on the drawings. Warning signs will be placed every 200 feet along the fence. The approximate lineal feet of fence for each area is as follows:

North Disposal Area	2,350 ft.
White Goods Disposal Area "A"	475 ft.
Alleged Liquid Disposal Area	310 ft.
Southeast Disposal Area	2,030 ft.
Southwest Disposal Area	980 ft.

3.4 SITE CLEANUP AND DEMOBILIZATION

The RAC will demobilize labor, equipment, and materials from the Site upon completion of the work activities and after having met the project objectives. Demobilization will occur in stages as various work activities are completed. Demobilization will include those activities discussed below.

3.4.1 Decontaminate Site Equipment

All Site equipment that comes in contact with waste materials will be decontaminated before leaving the Site.

3.4.2 Site Cleanup

Temporary utilities will be disconnected as they are no longer needed. The Site will be cleaned up by removing traces of temporary construction facilities such as work areas, structures, silt fences, stockpiles of excess or waste materials, and other signed of construction. Temporary roads and parking areas will be graded to conform with the surrounding contours. The Site Superintendent will verify the Site is clean and restored to a level acceptable to the Engineer before demobilizing the remaining Site resources.

3.4.3 Demobilize Resources

All equipment will be monitored for proper decontamination prior to leaving the Site. All left over materials will be removed from the Site.

As Site construction equipment (excavators, dozers, trucks, loaders, etc.) is no longer necessary, it will be decontaminated and demobilized from the Site.

The following personnel will be utilized to demobilize the equipment and materials and return them to the RAC office:

- Operations Foreman
- Equipment Operators
- Electricians
- Recovery Technicians
- Truck Drivers

After all the equipment has been demobilized, the RAC will demobilize the work force at the Site.

3.4.4 Removal of Temporary Erosion and Sedimentation Controls

After the landfill construction activity has been completed, and the permanent grass is firmly established, the RAC will remobilize resources to remove the temporary erosion control items, such as silt fence, hay bale barriers, and stone check dams. Accumulated sediments will be disposed of on Site and any disturbed areas stabilized. Materials requiring disposal such as silt fenced will be disposed at a designated off-site facility approved by the Engineer.

4.0 PROCEDURES FOR DECONTAMINATION

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when leaving the work site, either at the end of each day, during scheduled breaks, and/or upon completion of the project. The procedures will be described in detail in the RAC's HASP. Example procedures are described below.

4.1 PERSONNEL DECONTAMINATION

Decontamination procedures will ensure that material which workers may have contacted in the exclusion zone (EZ) does not result in personal exposure and is not spread to clean areas of the Site. The EZs will be limited to the areas around the excavation within the landfill sites. All other work areas are considered to be clean. The specific stages will vary depending on the Site, the task, the protection level, etc.

4.1.1 Personnel Decontamination Procedures--Level D

Decontamination procedures will follow these steps:

- Deposit any used equipment in a segregated area prior to entering the CRZ. This segregation reduces the possibility of cross contamination.
- At the perimeter of the EZ, rain gear, or splash protection (if worn) will be damp-wiped or wet sprayed to remove any adhered particles or corrosive liquids. The effort will eliminate any exposure to support personnel and workers themselves during the PPE doffing process.
- Outer booties will be removed and disposed of in the solid wastestream.
- Hard hats will be removed and hung up. On a daily basis, these will be scrubbed with detergent.
- Tyvek will be disposed in the solid wastestream.
- Sample gloves will be disposed in the solid wastestream.
- Each person will wash his or her hands, arms, neck, and face.

4.1.2 Personnel Decontamination Procedures--Level C

Decontamination will follow these steps in the order listed:

- Deposit any used equipment in a segregated area prior to entering the CRZ. This segregation reduces the possibility of cross contamination.
- At the perimeter of the EZ, all personnel will be damp-wiped or wet sprayed to remove any adhered particles or liquids. This effort will eliminate any exposure to support personnel and workers themselves during the desuiting process.
- Robar/Tingley boots will be scrubbed with a detergent-water solution. The boots will then be removed and placed on a rack for drying.
- Hard hats will be removed and hung up. On daily basis, these will be scrubbed with detergent.
- Outer gloves will be cleaned and removed, and depending on condition, will be discarded (if damaged or uncleanable).
- Disconnect and remove full-face respirator. The initial five phases of decontamination should eliminate the airborne hazard at this point.
- Splash gear will be removed, cleaned and hung up to dry (if worn).
- Tyvek or Saran suits will be removed and discarded.
- Vinyl booties will be removed and discarded.
- Sample gloves will be removed and discarded.
- Personnel will then wash their hands, arms, neck, and face.

4.1.3 Suspected Contamination

Any employee suspected of sustaining skin contact with chemical materials will first use the emergency shower. Following a thorough drenching, the worker will proceed to the decontamination facility. There, the worker will remove clothing, shower, don clean clothing, and immediately be taken to the first-aid station.

4.1.4 Personal Hygiene

Before any eating, smoking, or drinking, personnel will wash hands, arms, neck, and face.

4.2 EQUIPMENT DECONTAMINATION

All subcontractor equipment will be inspected for general safety and cleanliness by a RAC representative. All equipment that comes in contact with contaminated materials will be decontaminated before leaving the Site. The RAC will install a decontamination pad near the disposal areas, for the decontamination of heavy equipment. Decontamination procedures will vary depending on the contaminant involved, but may include sweeping, wiping, scraping, hosing, or steaming the exterior of the equipment. Personnel performing this task will wear the proper PPE as prescribed the SSO.

4.3 DISPOSAL OF DECONTAMINATION WASTES

All liquid wastes generated during decontamination procedures (i.e., aqueous and non-flammable organic solvent rinses) will be treated and tested on site or collected in 55-gallon closed-head drums for eventual disposal. If disposed of, the wastes will be separated into two separate wastestream categories. The RAC will minimize the generation of these wastestreams throughout the project. Solid wastes will be drummed or incorporated into the other solid wastestreams for proper disposal.

4.4 EMERGENCY DECONTAMINATION

In addition to routine decontamination procedures, emergency decontamination procedures must be established. In an emergency, the primary concern is to prevent the loss of life or severe injury to Site personnel. If immediate medical treatment is required to save a life, decontamination should be delayed until the victim is stabilized. If decontamination can be performed without interfering with essential life-saving techniques or first aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination must be performed immediately.

If an emergency due to a heat-related illness develops, protective clothing should be removed from the victim as soon as possible to reduce the heat stress. During an emergency, provisions must also be made for protecting rescue first air, or medical personnel and disposing of contaminated clothing and equipment.

If decontamination can be done:

- Wash, rinse, and/or cut off protective clothing and equipment.

If decontamination cannot be done:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel
- Alert emergency and off-site medical personnel to potential contamination; instruct them about the specific decontamination procedures, if necessary
- Send along Site personnel familiar with the incident

4.4.1 Emergency Decontamination Equipment

The following equipment shall be readily available for emergency decontamination:

- Nitrile gloves
- Soap and water
- Visqueen
- Towels
- Eyewash station
- Spare coveralls

5.0 FINAL REPORT

A final engineering report will be written and finalized within 30 days of project completion and furnished to the Engineer. The 30 days will commence on the first day after the final inspection has been completed. The complete final engineering report will contain the following items:

- Executive Summary of Action
- Summary of Record Documents
- Project Description
- Field Investigation Summary
- Field Changes and Project Modifications
- Discussion of Remediation Activities Performed
- Summary of Procedures Employed During the Remedial Action
- Analytical Data
- Materials Testing Data
- Presentation of remedial design/remedial action (RD/RA) Results
- As-Built Drawings
- Final Health and Safety Report
- Off-Site Disposition of Materials
- Quality Control Summary Report
- Descriptions of Corrective Actions Taken and Any Potential Future Actions to be Taken
- Conclusions Regarding Conformance of Treatment Process with Performance Standards
- Operations and Maintenance Manual
- Permit Compliance
- Warranty statements for workmanship and HDPE installation

Two complete and separate sets of construction drawings will be maintained in the field. These drawings will indicate the current project status and any deviations from the project plans.

ARAR	Applicable Relevant, and/or Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CPVC	Chlorinated Polyvinyl Chloride
CQAPP	Construction Quality Assurance Project Plan
CRZ	Contamination Reduction Zone
EZ	Exclusion Zone
Engineer	Supervising Contractor of the Performing Party
FS	Feasibility Study
GAC	Granular Activated Carbon
HASP	Health and Safety Plan
HDPE	High Density Polyethylene
HVAC	Heating, Ventilation, and Air Conditioning
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conversation
NYSDOH	New York State Department of Health
ORP	Oxidation/Reduction Potential
OSHA	Occupational Safety Health Administration
PCB	Polychlorinated Biphenyl
PLC	Programable Logic Controller
PPE	Personal Protective Equipment
psi	pounds per square inch
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RAC	Remedial Action Contractor
RAWP	Remedial Action Work Plan
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
SSO	Site Safety Officer

TDH	Total Dynamic Head
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound