REMEDIAL ACTION WORK PLAN

ROSEN SITE
CORTLAND, NEW YORK

FEBRUARY, 2002

PREPARED FOR:

ROSEN SITE JOINT DEFENSE GROUP

PREPARED BY:

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1.0 INTRODUCTION

The Record of Decision (ROD), issued by the U.S. Environmental Protection Agency (USEPA) on March 23, 1998, outlined the general Remedial Design (RD) and Remedial Action (RA) activities to be undertaken at the Rosen Superfund Site, located in Cortland, New York (see Figure 1). This work plan has been prepared by Barton & Loguidice, P.C. on behalf of the Rosen Site Joint Defense Group, and is provided in accordance with § VI of the Statement of Work (SOW) associated with the Consent Decree (CD) for implementation of the ROD.

The CD and CD SOW will be provided to all contractors and subcontractors. Technical specifications provided in the RA are consistent with the final RD, Addendum 1. In the case of conflicts between the technical specifications and any other sections of the RD, communication shall be made to EPA, or its representative, should a substantial change be required. Any modifications or deviations to the approved RD Report or any other EPA-approved document must first be approved by EPA. As specified by the CD, EPA retains the right to approve, disapprove, require revisions to, or modify any plan, report, or other item required to be submitted to EPA for approval pursuant to the CD. EPA will be given at least one-week notice and the opportunity to attend the pre-construction conference. The documents to be distributed at this conference will be approved by EPA prior to distribution.

The SOW describes two Remedial Work Elements (RWEs) to be performed, which are summarized as follows:

1.1 RWE 1: Soil Excavation/Debris Relocation Cap/Cover RA

- Excavation and re-location/disposal of soils impacted by 1,1,1-trichloroethane (TCA) above 1 mg/kg.
- Excavation and re-location/disposal of soils impacted by polychlorinated biphenyls (PCBs). Note: This task has already been completed.
- Removal and consolidation of non-hazardous debris onto the former cooling pond.
- Design and placement of a 6 NYCRR Part 360 cap over the former three-acre cooling pond.
- Construction of a chain link fence around the former cooling pond following cap placement.
- Placement of a surface cover over the remaining areas of the site.
- Implementation of storm-water management improvements to protect the cap and surface cover.
- Employment of dust and volatile organic compound (VOC) control/suppression measures during construction and excavation activities.
- Implementation of an operation and maintenance (O&M) program for the constructed remedial components.
- Securing institutional controls restricting 1) groundwater usage at and downgradient of the site, 2) excavation or other on-site activities which could compromise cap/cover integrity, and 3) residential use of the property.

1.2 RWE 2: Long-Term Monitoring RA

- Verifying that natural attenuation is successfully addressing groundwater contamination.

- Securing institutional controls restricting 1) groundwater usage at and downgradient of the site, 2) excavation or other on-site activities which could compromise cap/cover integrity, and 3) residential use of the property.

This work plan provides the Site Management Plan (SMP), which is a description of the activities that will be conducted as part of the RA work plan along with the associated procedures. Also included in this work plan are updated versions of the Sampling and Analysis Monitoring Plan (SAMP), the Quality Assurance Project Plan (QAPP), and the Health and Safety Plan (HSP) in Appendices A, B and C, respectively.

Any subcontractor's plans (e.g., QAPP, SAMP, etc.), proposed to be incorporated into the RA, will be submitted to EPA for review and approval prior to the initiation of on-site activities. This work plan has been revised to incorporate comments provided by USEPA, and is accompanied by revised drawings and technical specifications that were prepared as part of the final design report (100% design). In specific, the revised design drawings incorporate several features that were discussed with USEPA to lower the profile of the cap.

2.0 SITE MANAGEMENT PLAN

2.1 RA Project Team

Barton & Loguidice will serve as the Supervising Engineer for the RD and the RA. Staff from Barton & Loguidice who have not been involved with the RD will perform the functions of the Independent Quality Assurance Team (IQAT), as required by the CD. Barton & Loguidice will have an on-site construction inspector to work with the Remedial Construction Contractor and to implement the Construction Quality Assurance Plan (CQAP); a revised CQAP will be submitted under separate cover. See Figure 2 for the project team organization.

Clean Harbors will be the Remedial Construction Contractor for the RA. Clean Harbors will perform remedial construction work with its own personnel and equipment and will subcontract labor and equipment as needed. Clean Harbors will be responsible for procurement and delivery of construction materials, such as geotextiles, common fill and drainage pipe. Clean Harbors will have an on-site construction manager who will oversee site activities and will be responsible for the scheduling of labor, equipment and delivery of materials.

The SOW requires the assignment of an IQAT to assure implements action of the CQAP. This role will be filled by an independent construction QA manager from Barton & Loguidice who has not been involved with the RD. The construction QA manager may involve members of the Remedial Design (RD) team, if appropriate, during the performance of the RA. In the event that design modifications are necessary because of differing site conditions, the IQAT will have the authority to render engineering judgments and advice to the Remedial Construction contractor. The responsibilities and authorities of the quality assurance and construction inspection personnel are as follows.

Project Advisor: The Project Advisor will have overall responsibility for the performance of the QA program, will serve as Engineer of Record for the construction, and will sign and stamp the Certification Report. The Project Advisor will attend project meetings on an as-needed basis, and will be available for technical consultation.

Construction QA Manager: The Construction QA Manager will be responsible for assuring implementation of the QA program. He will ensure that there is adequate field staffing to fulfill the requirements of this plan, and will also ensure that design engineers are effectively integrated into the review process for field modifications of the approved design.

Field Construction Inspector: The Field Construction Inspector will be responsible for daily implementation of construction QA procedures at the site. If necessary, additional staff will be assigned to the Field Construction Inspector to complete QA tasks.

Ongoing Design Staff: There will be a design engineer assigned to the IQAT who will have the primary responsibility for supporting the field QC efforts and providing modifications to the approved design, if required by the Construction QA Manager.

Construction progress meetings will be held on a regular basis at the site. These meetings will be attended by representatives of Clean Harbors, IQAT, USEPA (if possible), and specialty contractors, if necessary. The meetings will be used for the following purposes:

- assess project progress against schedule,
- coordinate contractors and work elements,
- schedule labor and equipment,
- identify scheduling conflicts,
- schedule ordering and delivery of materials,
- review testing results Identify and resolve problems,
- review QA issues and design changes, if any,
- review contractual issues, and
- review health and safety issues.

Minutes of each meeting will be kept and distributed to attendees and other necessary parties (e.g. – Project Coordinator). Action items will be clearly identified, along with the responsible party for the assignment and due date.

2.2 Project Schedule

A revised project schedule is attached to this work plan as Figure 3.

2.3 Implementation of CQAP

Assuring implementation of the CQAP will be the responsibility of the IQAT, as described in the CQAP. The key member of the IQAT is the Construction QA Manager. This individual will be responsible for ensuring that the oversight and testing requirements of the CQAP are performed, from field inspection through the preparation of a certification report and stamping of as-built drawings. The Construction QA Manager also has the ability to integrate engineering design staff on an as-needed basis to address modifications to the approved design in response to filed conditions. A revised CQAP will be submitted under separate cover.

2.4 Decontamination Procedures

The decontamination of sampling equipment (i.e., trowels, sampling scoops, etc.) is described in HSP (Appendix C).

Heavy equipment (bulldozers, backhoes, dump body trucks, etc.) will be cleaned preferably at locations of the operations. Heavy equipment will be decontaminated following episodes of working with heavily contaminated soil/debris, or prior to removal from the site. Decontamination of heavy equipment will be done prior to personnel decontamination at a location to be determined by the Field Supervisor. Containment systems will be set-up for collections of decon fluids and materials. Berms and wind barriers will be set up, if appropriate. Heavy equipment decontamination will be primarily accomplished by washing with a high-pressure water spray. If needed, detergent solution

will be used along with scrubbing to remove dirt and contaminants from equipment surfaces.

Personnel will go through a contaminant reduction corridor to remove work clothing (gloves, boots, coveralls, etc.) prior to breaks, meals, or leaving the site. The support facilities located on the site (see Figure C-2, Appendix C) will have the contamination corridor as well as facilities for washing hands and face prior to exiting the corridor. For more details see the HSP (Appendix C).

2.5 Permitting Requirements

There do not appear to be permitting requirements associated with performing the RA; however, in the event that it becomes necessary to pump groundwater into a holding tank, a temporary NYSDEC Discharge Permit will be required for any discharges.

2.6 Construction Operations

2.6.1 Construction Sequencing

The general sequence of construction activities will be as follows:

- Mobilization to the site – set up of site trailers, utility hookups, decontamination pad construction, removal of all trees/grubbing, and install erosion control.
- Excavation and sampling of TCA-contaminated soils
- Cooling Pond subgrade preparation – relocation of debris and contaminated soil, intermediate cover placement and grading (discussed in more detail in the next section).
- Site wide drainage, improvements and protection of Perplexity Creek and its tributaries.

- Demolition of coal bin retaining wall and piers (relocation of demolition debris as needed); excavation and stockpiling of clean soil from behind retaining wall.
- Gas venting layer placement on Cooling Pond.
- Geomembrane (cap) placement on Cooling Pond.
- Lateral drainage layer placement on Cooling Pond.
- Topsoil layer placement on Cooling Pond.
- Placement of fence around Cooling Pond.
- Restoration Area grading.
- Geotextile placement on Restoration Area.
- Backfilling and topsoil on Restoration Area.
- Seeding of Restoration Area.

2.6.2 Excavation and Soil and Debris Relocation

The excavation of Site soil/fill process option would include the excavation, hazardous characteristics screening, and disposal of soils/fill associated with potential source areas. Excavation will continue until the ROD cleanup criteria of 1 mg/kg has been achieved, using an incremental depth of two feet for continued excavation. Soils that are suitable to remain on-site may also be used as part of the intermediate cover on the Cooling Pond. Confirmatory soil samples will be analyzed for VOCs. Figure 4 shows the approximate locations for test pits and soil sample locations. Actual locations will be determined in the field in consultation with USEPA.

Site debris will be relocated to the limits of waste within the Cooling Pond. Site debris consists of building materials (brick, concrete, structural steel, etc.), concrete foundations and residual scrap materials that remain on the site. Tires will be separated from site debris, stockpiled and sent off-site for disposal. Loose materials will be scooped up using an excavator and placed into dump-

bodied trucks for transport to the Cooling Pond. A bulldozer will be used to spread out and grade dumped materials. Large pieces of concrete will be mechanically broken into manageable pieces either with the loader or appropriate pneumatic equipment. Per USEPA, cleaned cobbles and stones of any size can be used as fill.

The areas of TCA-contaminated soil have been generally delineated by previous site studies. The locations of the areas of TCA-contaminated soil will first be field staked based on maps from these previous studies. A series of test pits will then be excavated within the staked areas, and excavated soil will be placed on plastic sheeting (see Figure 4 for the approximate locations of the test pits). The test pits (roughly 2 feet wide and 8 feet deep) will be used to define the approximate extent of TCA-contaminated soil using: field screening with a photoionization detector (PID), which is capable of detecting TCA, to help identify areas of gross contamination; and quick-turnaround laboratory analysis for volatile organic compounds (VOCs) by USEPA SW-846 Preparatory Method 5035 and SW-846 Method 8260B. Once the approximate limits of contaminated soil have been determined, soils exceeding the cleanup criteria of 1 mg/kg will be excavated and stockpiled into rolloff containers lined with plastic sheeting while awaiting transportation off-site to a licensed facility. Also, per USEPA requirements, confirmation samples will be collected from each excavation on the basis of two grab samples per 25-foot grid box on the floor and one per 15 feet of perimeter and interior sidewalls. Sidewalls are defined as a vertical face within an excavation two feet or greater in height. All perimeter sidewalls will be sampled regardless of depth. The soil stockpiles will be sampled per USEPA (four grab samples per 100 yd^3 - three surface samples and one core sample) and disposal facility requirements for proper waste characterization. Any interim sampling and analysis results will be reported to USEPA. Personnel will not enter excavations to collect soil samples.

Excavations will be backfilled with clean fill, which will be certified clean and include analytical results for VOCs, SVOCs, PCBs, and metals. With USEPA approval, stockpiled soil with TCA concentrations of less than 1 mg/kg, may also be used as backfill. On-site treatment of TCA-contaminated soils is not being considered. Prior to backfilling, excavations will be lined with a demarcation material. Soils that require off-site disposal will be covered with plastic and secured while awaiting acceptance at the disposal facility. USEPA will be notified of the proposed receiving facility, and USEPA approval of the facility will be required prior to shipment.

2.6.3 Site Maintenance During the RA

Site preparation will be conducted as part of the mobilization task (see the project schedule – Figure 3). During this task, equipment will be brought to the site, and site facilities will be prepared. Construction trailers will be brought to the site and set up as shown on Figure 5. Electrical power and phone service will be connected to the trailers during this time. Portable toilets will also be brought to the site at this time. Decontamination facilities will be constructed as shown on Figure 5, and as described in the HSP.

The RD drawings provide details for sediment and erosion control during the construction of the cap on the Cooling Pond. The controls consist of hay bales and silt fencing placed at appropriate locations within and around the area to be capped. Also part of the design is the provision of improved drainage around the site, including Perplexity Creek and its tributaries if necessary. The improvements will restore proper drainage to the site and protect Perplexity Creek and its tributaries from bank erosion. An initial site reconnaissance will be made to inspect drainage conditions prior to construction. To the extent that site drainage

improvements are needed to protect prior construction efforts, they will be made following discussion with USEPA. These improvements may include cleaning and enlarging drainage ditches and culverts, stabilizing and repairing creek banks, and diverting or rerouting drainage within the site. Inspections will be conducted periodically during the construction phase to determine whether the drainage improvements are functioning as necessary; further repairs will be made as needed following these inspections. Particular attention will be paid to ensuring that bank erosion along Perplexity Creek is not occurring and that repairs in the form of bank stabilization are adequately protecting prior construction efforts.

Working areas of the site that have the potential to generate nuisance dust will be wetted as needed to suppress fugitive dust. This includes active roadway areas as well as soil and debris excavation and grading activities on the former Cooling Pond. Copies of New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) 4031 and New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP) are included in Appendix D. The TAGM and CAMP will be used to direct monitoring and control of airborne VOCS and particulates that may be generated by RA activities. The action levels required by the TAGM and the CAMP have been specifically incorporated into the HSP (Appendix C).

Site security will be maintained during the RA by the existing site fence and gates. The eastern gate (Pendleton Street) will be the primary access gate, and will be kept locked during non-working hours. It is not anticipated that truck traffic on Pendleton Street as a result of RA activities at the site will be appreciably increased from normal; consequently, coordination with local authorities on traffic issues is not expected to be necessary.

2.6.4 Operation and Maintenance Following the RA

Per the SOW, an Operation and Maintenance (O&M) Manual will be prepared for the RA. The main elements of the O&M Manual are the regular inspection of the constructed cap, performance of minor repairs (if needed) and provision of regular mowing and upkeep of the site. An outline of the O&M Manual is provided below. Note that environmental monitoring activities are provided in the Groundwater and Sediment Monitoring Plan.

Personnel
Health and Safety Plan
Description of Environmental Monitoring Activities
Part 360 Environmental Monitoring Plan
Description of O&M Activities
Description of Potential Problems
Status of Institutional Controls
Schedules

The methodology for implementing the O&M Manual is described in this paragraph. Following completion of RA construction activities and USEPA approval of the O&M Manual, O&M activities will be commenced according to the approved schedule. A qualified engineer will perform cap inspections on an annual basis; necessary repairs identified by the engineer based on the site inspection will be made on a timely basis. A qualified landscape contractor will be retained for mowing and site upkeep.

2.6.5 Institutional Controls

The SOW calls for the implementation of the institutional controls (such as deed restrictions) that would restrict 1) groundwater usage at and downgradient of the site, 2) excavation or other on-site activities which could compromise

cap/sitewide cover integrity, and 3) residential use of the property. During the RA Construction, research will be conducted to determine the type of institutional controls that can be applied in Cortland County and the City of Cortland. Research will also be conducted into what entity (e.g. federal government, state government, PRP group, property owner) can legally apply these deed restrictions. Finally, research in property ownership will be conducted. The RA report will contain the results of this research and will provide recommendations on the type of deed restrictions, which entity should enter the restrictions, and to which properties the restrictions should be applied.

2.7 Construction Quality Control

This section describes the construction elements and associated quality control measures. An additional consideration in constructing the cap over the former Cooling Pond is to maintain a profile as low as feasible in accordance with a request from USEPA. To that end, the following changes in the approved Remedial Design have been made to lower the cap profile:

- the coal bin retaining wall will be demolished and clean soils contained behind the wall will be used in cap construction, with USEPA approval,
- the gas venting layer of the cap will be a geotextile rather than 12 inches of sand, and
- the barrier protection layer has been reduced from the normal Part 360 requirement of 24 inches to 12 inches, while still providing the necessary protection and performance requirements (note – this is subject to review and approval by NYSDEC).

2.7.1 Construction Inspection and Testing

Assurance that the remedy is constructed in accordance with the approved design will be provided through a rigorous testing and inspection (Quality Assurance/Quality Control) program (QA/QC)

This program will apply to the materials to be used in the remedial construction, as well as to the constructed and installed components of the RA. The appropriate methods of test and inspection procedures are outlined within the Technical Specifications. Materials QA/QC testing summaries have been included in Table 1.

2.7.2 Subgrade Preparation

Debris and contaminated soil will be relocated to within limits of waste of the landfill from the remediation area of the site. Following debris relocation, a minimum 12-inch thick intermediate cover layer consisting of Type C Select Fill will be installed over the debris. It is contemplated that soil from behind the coal bin will also be used as intermediate over, helping lower the overall profile of the cap. The intermediate cover will be graded to accommodate positive drainage to the contours of the subgrade grading plan. The intermediate cover will be compacted to provide a firm base to construct the landfill capping system.

Material requirements and Construction Quality Assurance / Construction Quality Control (CQA/CQC) requirements for Type C Select Fill can be reviewed in the Technical Specification Section 02226. Grain Size Analyses and minimum/maximum relative density tests will be performed on the Type C Select Fill at the specified frequencies as outlined in the Specifications.

2.7.3 Gas Venting Layer

Above the prepared subgrade, a gas-venting layer will be constructed. The gas venting layer will consist of a composite geonet (250 mil thickness), as described in Section 02237 of the Technical Specifications. A Type 1 non-woven

geotextile will be installed below the gas venting layer. A minimum of 1 gas-venting riser per acre will be installed into the debris to relieve the gas collected by the gas-venting layer. Each gas vent will be installed at a depth of at least five feet into refuse and consist of 6-inch Schedule 40 perforated poly vinyl chloride (PVC) pipe below the geomembrane and 6-inch Schedule 40 solid PVC pipe above the geomembrane. The perforated pipe below the geomembrane will be installed within a stone pocket of Type D Select Fill wrapped in Type 1 Geotextile. The solid pipe will extend a minimum of 4-feet above the landfill capping system final grade and will be fitted with a gooseneck fitting and bird/insect screen. Material requirements for PVC pipe can be reviewed in Technical Specification Section 02435.

Extensive visual inspection will be performed by the IQAT on the material entering the site for change in color, texture and any foreign debris. During inspection, the Field Construction Inspector will ensure that the gas-venting layer is free of objects that could puncture the geomembrane, and that the final surface is compacted and properly graded for installation of the geomembrane.

2.7.4 Geomembrane

A 40 mil Linear Low Density Polyethylene (LLDPE) geomembrane will be used as the barrier layer. The geomembrane will be textured on all sides for all applications. All construction and CQA/CQC requirements for the geomembrane can be found in Section 02598 of the Technical Specifications.

Prior to placement of the geomembrane, the Remedial Construction contractor will provide data and information for the geomembrane to the IQAT, including resin quality, sheet properties, and quality control certificate(s). This data and information will be reviewed for compliance with the approved

specifications. Upon delivery of the geomembrane panels, the Field Construction Inspector will ensure that samples are collected at the specified frequency (see Table 1) and submitted to the quality assurance laboratory for testing. For each lot number of the geomembrane delivered to the site, a sample will also be taken for fingerprinting of the roll. The extra samples will be stored at room temperature out of direct sunlight for possible future testing. The delivered geomembrane panels will be visually inspected for uniformity, damage and imperfections. The panels will be stored in a manner to protect them from excessive dust, dirt, shock or other sources of damage.

The geomembrane will be placed according to the approved construction sequence. The geomembrane should not be placed on soils with stones larger than 3/8". Deployment of geomembrane panels will be performed in accordance with manufacturer's instructions. The Field Construction Inspector will inspect the deployment process to ensure that the geomembrane is not damaged during placement. The geomembrane will be seamed in accordance with the approved specifications. The Field Construction Inspector will monitor and inspect the seaming work, and will ensure that sampling and testing are conducted on the proper frequency (see Table 1).

2.7.5 Lateral Drainage Layer

A lateral drainage layer will be installed directly above the geomembrane. The lateral drainage layer will consist of a composite geonet possessing a minimum transmissivity of 1×10^{-4} m^3/sec-m.

Material requirements and CQA/CQC requirements for composite geonet can be reviewed in the Technical Specification Section 02237.

Prequalification and conformance testing will be performed on the composite geonet at the specified frequencies as outlined in the Technical Specifications.

2.7.6 Barrier Protection Layer

The barrier protection layer will be constructed above the lateral drainage layer of the capping system. The barrier protection layer will consist of a 12-inch thick layer of common fill material, per the revised design drawing (Sheet 5); note, this is subject to review and approval by NYSDEC.

Common fill material will be well graded from fine to coarse with a minimum of 15 percent passing by weight the No. 200 sieve and possessing a maximum permeability of 1×10^{-5} cm/sec. Cobbles and stones, if any, of any size may be used as a backfill in specific locations. The methods and procedures utilized to spread the soil material must insure that no damage is rendered to the underlying layers of the capping system. Material requirements and necessary CQA/CQC requirements can be reviewed in Technical Specification Section 02257.

2.7.7 Topsoil Layer

A 6-inch thick layer of topsoil will be installed above the barrier protection layer. This layer will be fertilized and seeded upon completion, using the following seed mixture:

Species or Variety	Percentage by Weight
"Lancer" Perennial Pea (or Lafco Pea if Lancer is unavailable)	40
Perennial Ryegrass	20
New Zealand White Clover	10
Timothy Grass	10
Orchard Grass	10
Smooth Bromegrass	10

The purpose of the topsoil layer is to establish vegetative growth over the landfill that will help with runoff and control erosion. Material requirements and all necessary CQA/CQC requirements can be reviewed in Technical Specification Sections 02484 and 02485.

2.7.8 Restoration Area Final Cover System

Following relocation of the debris and contaminated soil from the restoration area to the landfill area, the restoration area will be graded to drain according to the subgrade grading plan and a final cover system applied. The proposed final cover system consists of a Type 3 Geotextile demarcation layer covered by an 8-inch thick common fill layer and 4-inch topsoil layer. The topsoil layer will be seeded, fertilized and mulched to establish vegetative growth.

Material requirements and Construction Quality Assurance / Construction Quality Control (CQA/CQC) requirements for common fill material can be reviewed in Technical Specification Section 02257, and for topsoil in Technical Specification Section 02484.

2.7.9 Geotextiles

Geotextiles will be utilized as a separation fabric between layers of the capping system as well as for geomembrane cushioning. All necessary CQA/CQC requirements can be reviewed in the Technical Specification Section 02072.

Prior to placement of the geotextile, the Contractor will provide data and information for the geotextile to the IQAT, including a list of guaranteed "minimum average roll values". This data and information will be reviewed for

compliance with the approved specifications. Upon delivery of the geotextile, the Field Construction Inspector will ensure that samples are collected at the specified frequency (see Table 1) and submitted to the quality assurance laboratory for testing. For each lot number of the geotextile delivered to the site, a sample will also be taken for fingerprinting of the roll. The extra samples will be stored at room temperature out of direct sunlight for possible future testing. The delivered geotextile rolls will be visually inspected for uniformity, damage and imperfections. The rolls will be stored in a manner to protect them from excessive dust, dirt, shock or other sources of damage.

Geotextile deployment will be performed in accordance with manufacturer's instructions. The Field Construction Inspector will inspect the deployment process to ensure that the geotextile is not damaged during placement. If geotextile will be seamed (in accordance with the approved specifications), the Field Construction Inspector will monitor and inspect the seaming work.

2.7.10 Drainage Ditches, Roadways and Site Facilities

The Field Construction Inspector will inspect the construction and/or improvement of roadways and drainage ditches to ensure that they are constructed according to the approved design. The Field Construction Inspector will also be responsible for inspecting other site-related construction including erosion and sediment control structures and installation of new fencing.

2.7.11 Record-keeping and Reporting

In addition to the logs and records maintained by the Field Construction Inspector, the IQAT will maintain a separate set of records and logs to demonstrate

that the remedy was constructed according to the approved design. The records and logs that will be kept by the IQAT include the following:

- Daily log of activities
- Testing results
- Project meeting minutes
- Photographic log
- Completed chain of custody forms
- Working sketches
- Telephone conversation log
- Manufacturer's specifications and warrantees
- Vendor submittals

The Field Construction Inspector will be responsible for the scheduling and management of submittals from subcontractors, fabricators, etc. The scheduling of submittals will be tied to the construction schedule so that the necessary submittals are provided well in advance of the associated delivery or activity. Submittals will be logged in by the Field Construction Inspector, routed to the appropriate person for review, and the submittal will be checked off on the project schedule following approval.

Changes to the approved design will be clearly recorded using a colored pencil on a single set of drawings that will be maintained by the Field Construction Inspector. These drawings will be used to prepare the final completed construction drawings at the completion of the project. A certification report will be prepared at the completion of the project which will contain the results of inspections and testing conducted by the IQAT to demonstrate the construction of the remedy in accordance with the approved design. This report will include the completed construction drawings, material certifications, and construction photographs. The

field-screening data from the PID will be included, when available, in all tables generated during construction-related activities.

2.8 Off-Site Disposal Facilities

The following facilities are proposed for off-site disposal of wastes:

Facility	Location	Waste Material	Disposal Method
	TBD	TCA-Contaminated Soil	To be determined based on analytical results and disposal facility acceptance criteria.
Modern Recycling, Inc.	4746 Model City NY 14107	Tires	Energy Recovery

2.9 Project Sign

A project sign will be prepared within two weeks of the mobilization of the Remedial Construction Contractor to the site. The sign will consist of a 4' by 8' sheet of plywood (3/4" thickness) that will be painted white with 3-inch minimum height block lettering. The sign will be attached to the fence near the Pendleton Street Gate, and will contain the following information:

ROSEN SITE REMEDIAL ACTION
PERFORMED BY ROSEN SITE JOINT DEFENSE GROUP
UNDER SUPERVISION OF THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION 2
USEPA PROJECT MANAGER – MARK GRANGER (212) 637-3351
SUPERVISING ENGINEER – BARTON & LOGUIDICE, P.C.
REMEDIAL CONSTRUCTION CONTRACTOR – CLEAN HARBORS ENVIRONMENTAL SERVICES

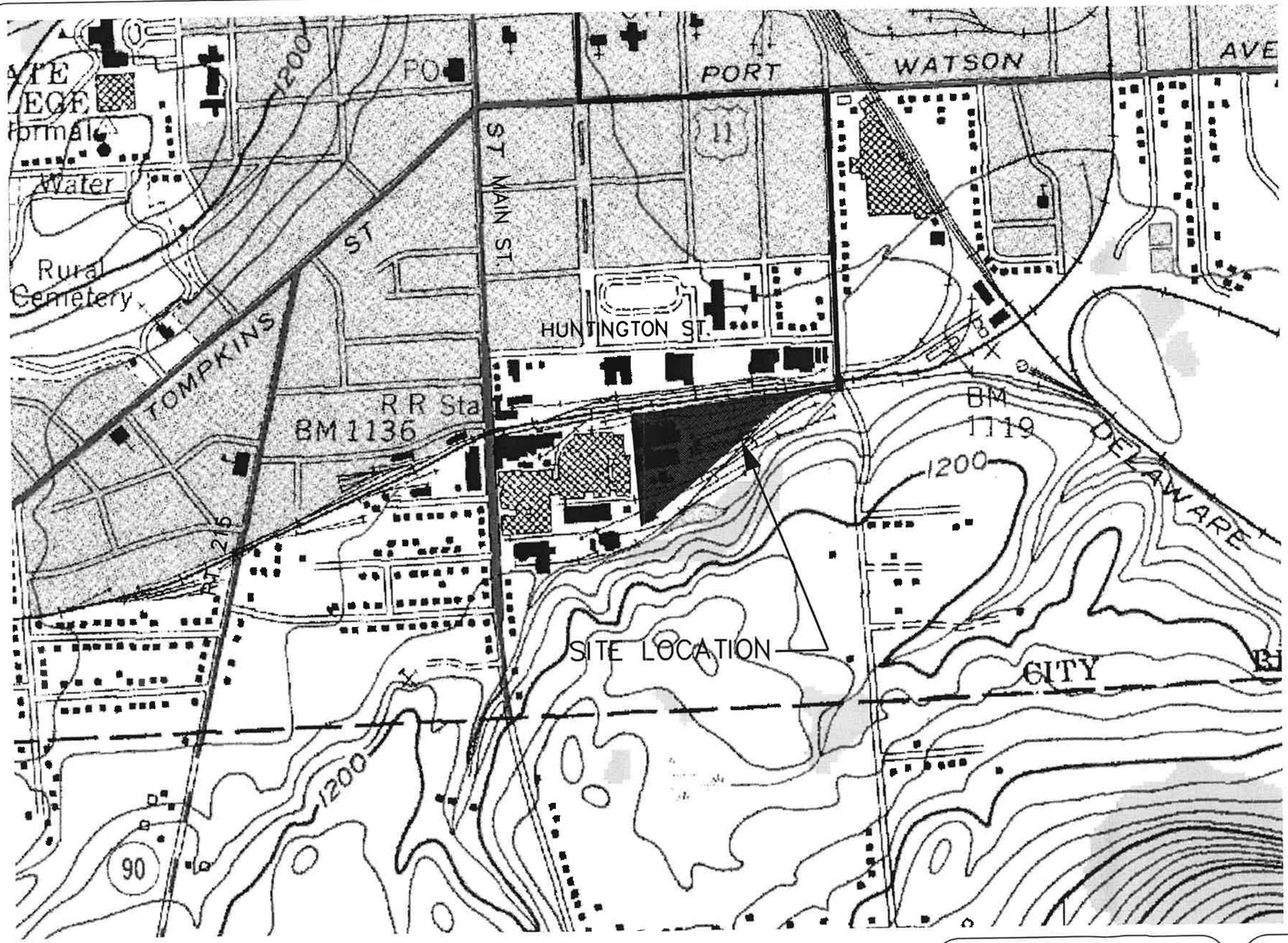
2.10 Performance Standards

All work performed during the RA phase will comply with the following:

- The requirements specified in the CD and referenced guidance documents,
- RA objectives defined in the ROD, and
- Performance standards defined in the CD, the SOW and the Statutory Determinations section of the ROD.

The RD report provided an extensive discussion of how the requirements of 6NYCRR Part 360 would be met. The requirements of Part 360 are the Applicable or Relevant and Appropriate Requirement (ARAR) for the landfill cap over the former Cooling Pond, and define the Performance Standards for cap construction. Other Performance Standards that were discussed in the RD work plan have been met, or will be met as follows:

Performance Standard	Action
40 CFR141, 6 NYCRR Part 700-705	Excavation of contaminated soil; natural attenuation
NYSDEC TAGM 4046	Excavation of contaminated soil
National Historic Preservation Act	Performance of a Stage 1 Cultural Resources Survey



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REMEDIAL ACTION
ROSEN SUPERFUND SITE

SITE LOCATION MAP
WITH ADJACENT STREETS

CITY OF CORTLAND CORTLAND COUNTY, NEW YORK

Figure
1

Project No.
617.001

Figure 2 - Project Management Organization
Rosen Site Remedial Action

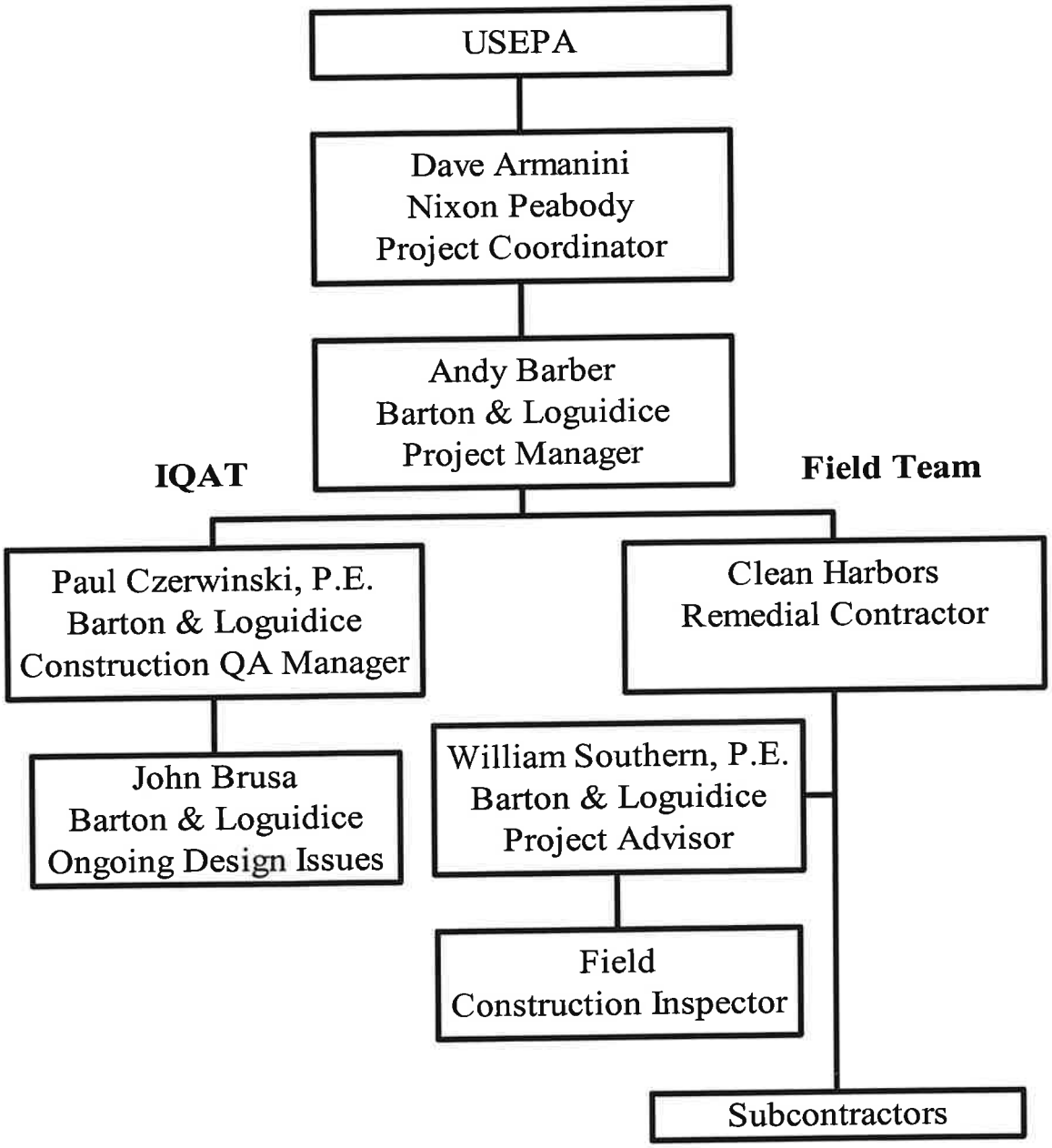
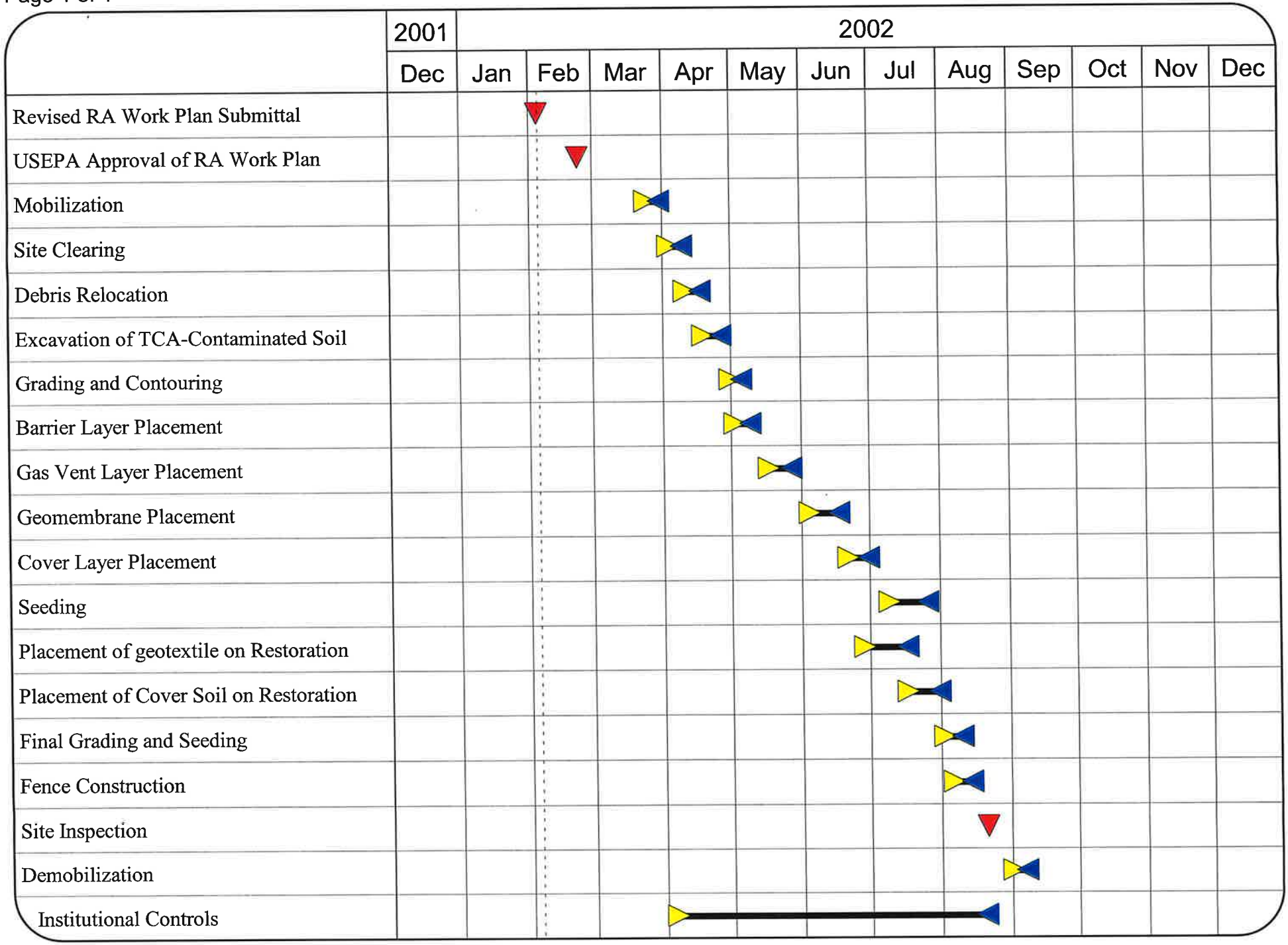
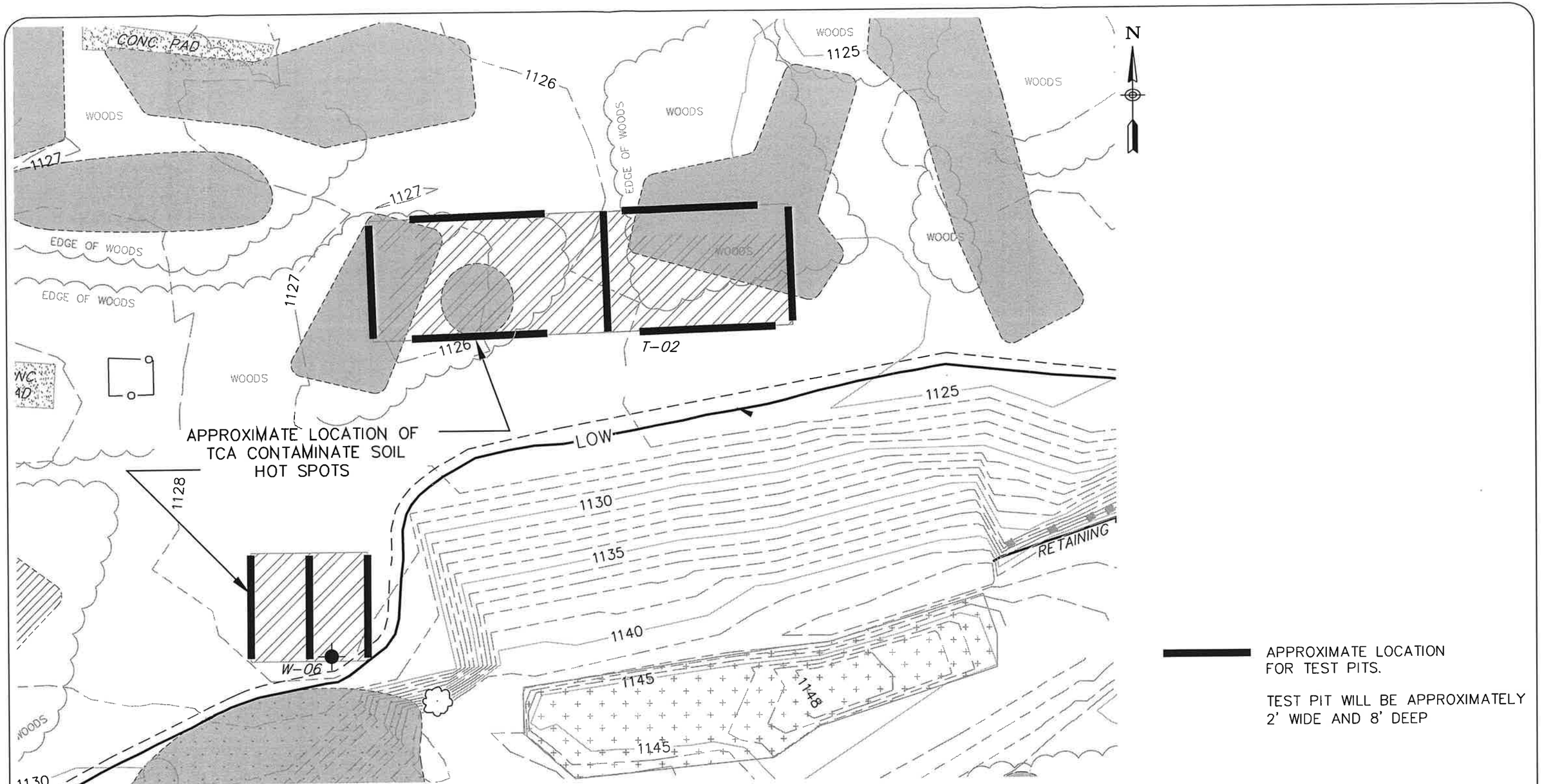


Figure 3 - Rosen Site - Schedule for Remdial Construction Activities

2/4/02





APPROXIMATE LOCATION
FOR TEST PITS.

TEST PIT WILL BE APPROXIMATELY
2' WIDE AND 8' DEEP

PLAN

SCALE: 1" = 40'

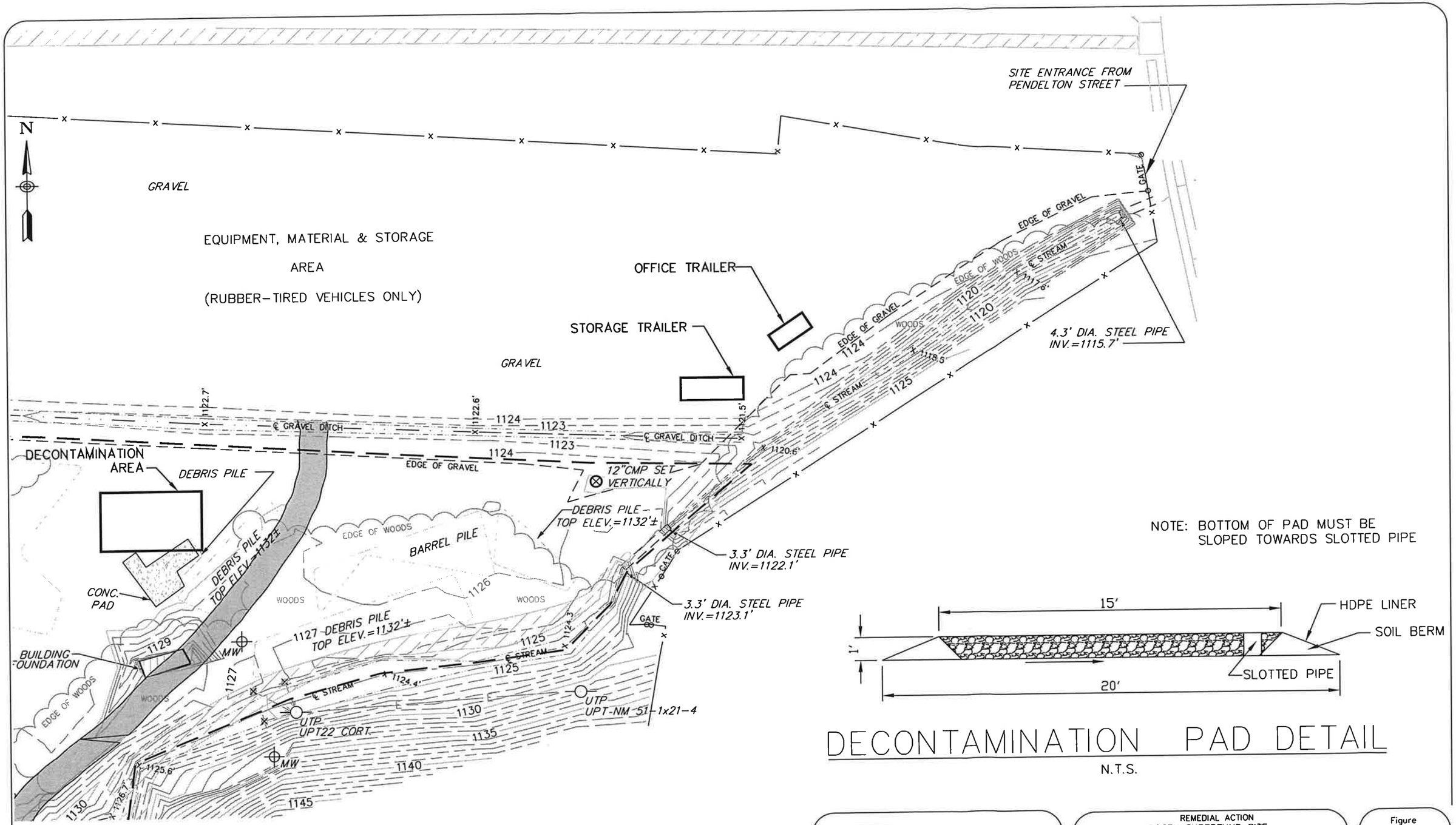
Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

REMEDIAL ACTION
ROSEN SUPERFUND SITE

PROPOSED TEST PIT LOCATION

CITY OF CORTLAND CORTLAND COUNTY, NEW YORK

Figure
4
Project No.
617.001



NOTE: BOTTOM OF PAD MUST BE SLOPED TOWARDS SLOTTED PIPE

DECONTAMINATION PAD DETAIL

N.T.S.

Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

REMEDIAL ACTION
ROSEN SUPERFUND SITE

PROPOSED SUPPORT FACILITIES LOCATION

CITY OF CORTLAND CORTLAND COUNTY, NEW YORK

Figure
5
Project No.
617.001

APPENDIX A

SAMPLING, ANALYSIS AND MONITORING PLAN

SAMPLING, ANALYSIS AND MONITORING PLAN

1.0 INTRODUCTION

1.1 General Description of Site Vicinity

The Rosen Site occupies an area of approximately 20 acres on the south side of the City of Cortland, Cortland County, New York. In general, Perplexity Creek, railroad tracks and several industries border the facility to the north, Perplexity Creek tributary to the south, Perplexity Creek tributary and Pendleton Street to the east and private lands and industries border the facility to the west (see Remedial Action Work Plan, Figure 1). The Rosen Site is surrounded by 7-foot high chain link fence with locked gate located on the east and west ends of the site.

1.2 Problem Definition

The Record of Decision (ROD), issued by the U.S. Environmental Protection Agency (USEPA) on March 23, 1998, outlined the general Remedial Design (RD) and Remedial Action (RA) activities to be undertaken at the Rosen Superfund Site, located in Cortland, New York. This Sampling, Analysis and Monitoring Plan (SAMP) has been prepared by Barton & Loguidice, P.C., on behalf of the Rosen Site Joint Defense Group and is provided in accordance with Subsection IV.A of the Statement of Work (SOW) associated with the Consent Decree (CD) for implementation of the ROD.

Any subcontractors working at the site will either adopt this plan or provide their own plan, which meets or exceeds the requirements of SAMP. Any other sampling, analysis and monitoring plans proposed to be used on the site must be reviewed by EPA. The content of SAMP may change or undergo revision based on additional information, monitoring results or changes in the scope of work.

Sampling and analysis activities related to the monitoring of groundwater and sediment

at the site are described in a separate plan, in accordance with Subsection III.B of the SOW.

2.0 SAMPLING AND ANALYSIS

2.1 Description And Purpose Of Sampling Activities

The sampling activities required during the RA phase consist of the collection and analysis of soil samples in two areas impacted by 1,1,1-trichloroethane (TCA). The two TCA-impacted areas are shown on Figure 4 of the RA work plan (these areas will be referred to as the T-02 and W-06 areas, consistent with previous site nomenclature). The RA work plan describes the options for management and disposal of the impacted soils. The data resulting from the sampling and analysis will be used to specify which option will be employed during the RA for management and disposal.

2.2 Sampling And Analysis Procedures

An additional survey of the site was conducted as described in the RD work plan. As part of this survey, the two areas of TCA-impacted soils were identified in the field and staked, based on existing maps. In addition, the Field Construction Inspector in consultation with EPA will determine the specific sampling locations. Prior to excavation, screening soil samples will be collected from field-selected locations (with concurrence from USEPA) within the two areas (see RA Work Plan, Figure 4) and will be field-screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID). The screening locations were selected to delineate the approximate extent of these two areas. As identified by the survey, additional screening locations will be employed if necessary to define the extent of contamination. Based on the results of the screening and the approximated size of these two areas (15,000 ft2 for T-02 area and 5,600 ft2 for the W-06 area), test pits will be excavated as described in the RA work plan.

During excavation of contaminated soils, screening sampling will be continued. Additional soil samples will be collected for laboratory analysis as excavation work is

completed, as described in the RA work plan. The number and location of samples will be field selected, with concurrence by USEPA.

Soil samples for VOC analysis will be collected using EnCore™ sampler, or similar tube or plunger type sampler. The sampling device is inserted into undisturbed soil or directly into exposed soil surface. The 5-gram plug of soil (approximately) is then capped and sent to the laboratory where it will be preserved, extracted and analyzed. Volume requirements under the current CLP method states that three (3) EnCore™ vials and one (1) unpreserved 60 ml jar be sent per sample location. The laboratory will be provided with sufficient EnCore™ or similar type samplers for the purpose of screening, analysis, and reanalysis, if necessary, as well as for MS/MSD. Holding time for EnCore™ or similar type samplers is 48 hours from time of collection to preservation. Although it may be necessary to utilize a metal trowel to obtain a particular fraction of the soil from the excavator. The sampling implements will be decontaminated between samples. Procedures described in RA Work Plan, Section 2.4 *(Decontamination Procedures)*. Personnel will not enter excavations to collect soil samples.

Though Triple Blank is not necessary for soil sampling, Region 2 requires use of Temperature Blank in coolers to verify that the samples have been maintained at 4 degrees C. The temperature blank should consist of a sample container filled with water (potable or distilled, unpreserved), and included in each cooler containing samples (soil and aqueous) being
sent for analysis. The container will be labeled "USEPA COOLER TEMPERATURE INDICATOR" and dated. Temperature of the blank will be taken and recorded on the chain of custody record immediately upon receipt at the laboratory, prior to inventory and refrigeration. Any interim sampling results generated will be reported to EPA.

APPENDIX B

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

PROJECT:	**Remedial Design**
SITE NAME:	**Rosen Site**
SITE LOCATION:	**Cortland NY**
CLIENT:	**Rosen Site Joint Defense Group**
PROJECT NUMBER:	**617.001**
DATE PREPARED:	**May 1999**:
DATE(S) REVISED:	

QUALITY ASSURANCE PROJECT PLAN APPROVALS

BARTON & LOGUIDICE, P.C.

PROJECT MANAGER: Paul Czerwinski _____

Name Signature Date

PROJECT OFFICER: William Southern _____

Name Signature Date

QUALITY ASSURANCE

MANAGER: Andrew Barber _____

Name Signature Date

REGULATORY AGENCIES

USEPA PROJECT MANAGER: Mark Granger _____

Name Signature Date

USEPA QUALITY

ASSURANCE MANAGER: _____

Name Signature Date

Distribution List:

Anders Carlson	New York State Department of Health
Jim Drumm	New York State Department of Environmental Conservation
David Armanini	Nixon Peabody

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1.0 PROJECT MANAGEMENT

1.1 Title and Approval Sheet

See Cover Page.

1.2 Table of Contents

See Preceding Page.

1.3 Distribution List

See Cover Page.

1.4 Project Organization

The project will be managed by Barton & Loguidice, P.C. The project team organization is discussed below and an organization chart is also provided in the Remedial Action Work Plan (RAWP) as Figure 2. This QAPP is Appendix B to the RAWP. The selected Laboratory is Upstate Laboratories of Syracuse, New York.

Barton & Loguidice will serve as the Supervising Engineer for the RD and the RA. Staff from Barton & Loguidice who have not been involved with the RD will perform the functions of the Independent Quality Assurance Team (IQAT), as required by the CD. Barton & Loguidice will have an on-site construction inspector to work with the Remedial Construction Contractor and to implement the CQAP (see Figure 2).

Clean Harbors will be the Remedial Construction Contractor for the RA. Clean Harbors will perform remedial construction work with its own personnel and equipment and will subcontract labor and equipment as needed. Clean Harbors will be responsible for procurement and delivery of construction materials, such as geotextiles, common fill and drainage pipe. Clean Harbors will have an on-site construction manager who will oversee

site activities and will be responsible for the scheduling of labor, equipment and delivery of materials.

The SOW requires the assignment of an IQAT to assure implements action of the CQAP. This role will be filled by an independent construction QA manager from Barton & Loguidice who has not been involved with the RD. The construction QA manager may involve members of the Remedial Design (RD) team, if appropriate, during the performance of the RA. In the event that design modifications are necessary because of differing site conditions, the IQAT will have the authority to render engineering judgments and advice to the Remedial Construction contractor. The responsibilities and authorities of the quality assurance and construction inspection personnel are as follows.

Project Advisor: The Project Advisor will have overall responsibility for the performance of the QA program, will serve as Engineer of Record for the construction, and will sign and stamp the Certification Report. The Project Advisor will attend project meetings on an as-needed basis, and will be available for technical consultation.

Construction QA Manager: The Construction QA Manager will be responsible for assuring implementation of the QA program. He will ensure that there is adequate field staffing to fulfill the requirements of this plan, and will also ensure that design engineers are effectively integrated into the review process for field modifications of the approved design.

Field Construction Inspector: The Field Construction Inspector will be responsible for daily implementation of construction QA procedures at the site. If necessary, additional staff will be assigned to the Field Construction Inspector to complete QA tasks.

Ongoing Design Staff: There will be a design engineer assigned to the IQAT who will have the primary responsibility for supporting the field QC efforts and providing modifications to the approved design, if required by the Construction QA Manager.

Construction progress meetings will be held on a regular basis at the site. These meetings will be attended by representatives of Clean Harbors, IQAT, USEPA (if possible), and specialty contractors, if necessary. The meetings will be used for the following purposes:

- assess project progress against schedule,
- coordinate contractors and work elements,
- schedule labor and equipment,
- identify scheduling conflicts,
- schedule ordering and delivery of materials,
- review testing results Identify and resolve problems,
- review QA issues and design changes, if any,
- review contractual issues, and
- review health and safety issues.

Minutes of each meeting will be kept and distributed to attendees and other necessary parties (e.g. – Project Coordinator). Action items will be clearly identified along with the responsible party for the assignment and due date.

1.5 Problem Definition/Background

The Record of Decision (ROD), issued by the U.S. Environmental Protection Agency (USEPA) on March 23, 1998, outlined the general Remedial Design (RD) and Remedial Action (RA) activities to be undertaken at the Rosen Superfund Site, located in Cortland, New York. This plan has been prepared by Barton & Loguidice, P.C. on behalf of the Rosen Site Joint Defense Group, and is provided in accordance with § III.B of the Statement of Work (SOW) associated with the Consent Decree (CD) for implementation of the ROD.

Any subcontractors working at the site may either adopt this plan or provide their own plan, which meets or exceeds the requirements of the QAPP. Any other quality assurance plans proposed to be used on the site must be reviewed by EPA. The content of

the QAPP may change or undergo revision based on additional information, monitoring results or changes in the scope of work.

The SOW describes two Remedial Work Elements (RWEs) to be performed, which are summarized as follows:

1.5.1 RWE 1: Soil Excavation/Debris Relocation Cap/Cover RA

- Excavation and re-location/disposal of soils impacted by 1,1,1-trichloroethane (TCA) above 1 mg/kg.
- Excavation and re-location/disposal of soils impacted by polychlorinated biphenyls (PCBs). Note: This task has already been completed.
- Removal and consolidation of non-hazardous debris onto the former cooling pond.
- Design and placement of a 6 NYCRR Part 360 cap over the former three acre cooling pond.
- Construction of a chain link fence around the former cooling pond following cap placement.
- Placement of a surface cover over the remaining areas of the site.
- Implementation of storm-water management improvements to protect the cap and surface cover.
- Employment of dust and volatile organic compound (VOC) control/suppression measures during construction and excavation activities.
- Implementation of an operation and maintenance (O&M) program for the constructed remedial components.
- Securing institutional controls restricting 1) groundwater usage at and downgradient of the site, 2) excavation or other on-site activities which could compromise cap/cover integrity, and 3) residential use of the property.

1.5.2 RWE 2: Long-Term Monitoring RA

- Verifying that natural attenuation is successfully addressing groundwater

contamination.

- Securing institutional controls restricting 1) usage at and downgradient of the site, 2) excavation or other on-site activities which could compromise cap/cover integrity, and 3) residential use of the property.

1.6 Project Description

Sampling and analysis activities, which will be conducted during the RA phase, include soil sampling to define the extent of contaminated soil.

1.7 Quality Objectives and Criteria for Measurement of Data

The overall QA objective is to develop and implement procedures for field measurements, sampling, and analytical testing that will provide data of known quality that is consistent with the intended use of the information. This section defines the objectives by (1) describing the use of the data, (2) specifying the applicable QC effort (field checks and analytical support levels), and (3) defining the QC objectives (data quality acceptance criteria).

1.7.1 Data Usage and Requirements

The field measurements and laboratory analyses will be used to support the one or more steps in the RA process. The data to be collected ranges from qualitative information (based on field observations) to quantitative laboratory analyses. An important factor in the use of the data will be the ability to evaluate site conditions with respect to the applicable or relevant and appropriate requirements (ARARs). For VOCs, these standards and guidance values range from the hundreds of ug/L to the low ug/L range, and the analytical methods have been selected to allow comparison in these concentration ranges.

The documents, "Contract Laboratory Program Statement of Work for Inorganic Analysis" (USEPA most recent edition), the "Contract Laboratory Program Statement of Work for Organics Analysis" (USEPA most recent edition), and Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-20) will be followed by the laboratory for the analyses of soil samples collected during the RA.

Standard operating procedure (SOP) for sample control, calibration, analysis of samples, data analysis, data validation, data reporting, internal QC checks, system performance audits, preventive maintenance, and data assessment will be prepared in accordance with the Statements of Work (SOWs) for USEPA CLP analysis. Analytical procedures will be described in this QAPP. The sample handling procedures are described in the Laboratory Quality Assurance Plan (LQAP) (previously submitted under separate cover) and they are consistent with the SOWs mentioned above.

Quantitation limits for the organic and inorganic parameter analyses are provided in the Organic and Inorganic CLP SOWs; and Methods for Chemical Analysis of Water and Waste; however, dilution or interference effects may make it necessary to raise these limits. The laboratory will make every effort to achieve detection and quantitation limits as low as practicable and will report estimated concentration values at less than the contract required quantitation limit by flagging the value with a J.

1.7.2 Level of Quality Control Effort

The laboratory will follow standard QC measures to provide data of known and defensible quality. The data quality elements that will be checked and documented include the Precision, Accuracy, Representativeness, Comparability and Completeness (PARCC) parameters, which are discussed separately below.

Precision. Measurements of data precision are necessary to demonstrate the reproducibility of the analytical data. Precision of the samples data will be determined from the analyses of matrix spike and matrix spike duplicates MS/MSDs) and field replicate samples. Field replicates will be collected and analyzed at a frequency of 10 percent (one per 10 samples) or at least one per sample matrix if less than 10 samples are to be collected. MS/MSD samples will be collected at a frequency of 5 percent (one MS/MSD pair per 20 samples), or one per two-week sampling period. An extra sample volume will be collected for each replicate and MS/MSD sample taken. QA/QC samples will be labeled on the sample container and appropriate sample log and chain-of-custody forms as replicate, or MS and MSD analyses. Laboratory precision requirements are provided in the LQAP (previously

submitted under separate cover).

Accuracy. Accuracy is the relationship of the reported data to the "true" value. The accuracy of the methods use for the analyses of samples will be evaluated through the use of calibration standards, MS/MSD analyses, and surrogate spikes. MS/MSD samples will be collected and analyzed at a frequency of 5 percent (one MS and one MSD per 20 samples per matrix), or one MS/MSD pair per two-week period. An extra sample volume will be collected for each MS/MSD sample taken. Laboratory accuracy requirements are provided in the LQAP (previously submitted under separate cover).

Representativeness. All data obtained should be representative of actual conditions at the sampling location. Considerations for evaluating the representativeness of the data include, but are not limited to the following: the sampling location; the methods used to obtain samples at the site; and the appropriateness of the analytical method to the type of sample obtained. All field-sampling activities will be performed according to the protocols. Laboratory representativeness requirements are provided in the LQAP (previously submitted under separate cover).

Comparability. Comparability will be achieved by utilizing standardized sampling and analysis methods and data reporting format. The data will be generated such that it is comparable to the existing database.

Completeness. Completeness is a measure of the amount of valid data obtained from a measurement program compared to the total amount collected. The validity of the collected data will be evaluated utilizing the appropriate QA/QC guidelines. Laboratory completeness requirements are provided in the LQAP (previously submitted under separate cover).

The sampling team will use many different types of QA/QC samples to ensure and document the integrity of the sampling procedures, laboratory handling procedures, and the validity of the measurement data (including temperature blanks).

Field replicate samples will be collected to also demonstrate the

reproducibility of the sampling technique. These analyses will be in addition to the replicates that the laboratory must run and will not be replaced by a laboratory-generated replicate. The replicate sampling locations will be selected for each sampling event. Since the replicate will be "blind" to the laboratory, it will have a coded identity on its label and on the chain-of-custody record form. The actual sampling location will be recorded on a daily log form.

1.7.3 Quality Control Objective (QC Objective)

The QC objective for the RA is to provide data of known and defensible quality. Several different types of QC check samples will be analyzed and the results will be compared to data quality acceptance criteria and/or QC control limits that are specified for each method. The laboratory will routinely run these QC samples in accordance with the protocols and frequencies specified in the CLP SOWs for Organics and Inorganics Analyses and will provide a comparable level of QC effort for the non-CLP analytical parameters. The QC check samples include the following:

- Blank samples
  - Preparation
  - Method
  - Holding
  - Calibration
  - Instrument
- Tunings
- Initial and Continuing Calibrations
- Surrogate spikes
- Matrix spikes/analytical spikes
- Duplicate samples
- Control Samples
- Reagent check samples

The QC control limits, or data quality acceptance criteria, for each of the types of QC check samples, the specific types and frequencies of QC checks which will be performed in support of each test method, the calibration procedures for each instrument, and the QC control limits and/or data quality acceptance criteria for each

of the types of QC check samples, are also specified in detail in the LQAP (previously submitted under separate cover).

QC for field screening measurements will be performed by regular calibration of field instrumentation against standards of known concentration. These calibrations will be performed both before and after field measurements. This will mostly apply to the photoionization detector (PID), which will be used in the field screening of soil samples (the PID is capable of detecting TCA).

1.8 Special Training Requirements/Certification

Not Applicable

1.9 Documentation and Records

Procedures for collection and recording field data are presented in the SAMP. Laboratory data packages will contain the necessary supporting information for performance of data validation as described in Section 4.0 and consistent with the LQAP (previously submitted under separate cover).

2.0 MEASUREMENT/DATA ACQUISITION

2.1 Sampling Process Design

Samples will be collected in accordance with the sampling protocols provided in the SAMP. These protocols specify detailed step-by-step procedure for sampling collection and address the following as appropriate:

- Sampling equipment use.
- Sampling equipment decontamination.
- Pre-sampling requirements (well evacuation volumes).
- Field screening procedures.
- Field QC checking sample collection procedures (blanks, rinseates, replicates).
- Samples packaging and shipment.

- Sampling documentation and chain-of-custody.
- Field analyses performance.

Samples will be delivered to the laboratory within 24 hours from time of collection. Soil samples will be placed into 100-ml glass vials with teflon lined septum caps and will not be acidified (14 day holding time).

2.2 Sampling Methods Requirements

Sampling methods are presented in the SAMP.

2.3 Sample Handling and Custody Requirements

A chain-of-custody record will be maintained for each sample collected and will provide an accurate written record that can be used to trace the possession and holding of samples from collection through analysis and reporting. The procedures that will be followed to provide the chain-of-custody in the field from sample collection through shipment to the laboratory (including sample preservation) are specified in the SAMP. The procedures that will be used to continue the chain-of-custody for each sample from its arrival in the laboratory through analysis and reporting specified in the LQAP (previously submitted under separate cover). The laboratory sample custody procedures conform to the guidelines in the USEPA CLP. The laboratory will retain the project samples until the holding times are exceeded, or until permission to discard them is received.

2.4 Analytical Methods Requirements

The analytical methods for testing for the volatile, semi-volatile, and inorganic parameters are those specified in the USEPA CLP, other parameters will utilize Methods for Chemical Analysis of Water and Waste. The types and frequencies of QC checks will be those specified in the analytical methods and are discussed in this QAPP. Full CLP data packages will be requested for the volatile, semi-volatile, and inorganic parameters and comparable data packages for the non-CLP analytical parameters.

2.5 Quality Control Requirements

The Field Construction Inspector will make use of the following types of QA/QC samples to ensure and document the integrity of the sampling and sample handling procedures and the validity of the measurement data: field replicates, field blanks, and laboratory-prepared trip blanks. The frequencies for collecting the QA/QC samples and analytical parameters are as follows:

Sample Type Frequency	Frequency	Analytical Parameters
Field replicates	5% of samples collected for each matrix	Same as samples
Field blanks	Daily	VOCs only
Trip blanks	Daily/each sample cooler	VOCs only

Two types of quality assurance mechanisms are used to ensure the production of analytical data of known and documented quality: analytical method QC, and program QA. The internal quality control procedures for the analytical services on samples to be provided are specified in the LQAP. These specifications include the types of control samples required (sample spikes, surrogate spikes, reference samples, controls, blanks), the frequency of each control, the compounds to be used for sample spikes and surrogate spikes, and the quality control acceptance criteria. The laboratory will be responsible for documenting that both initial and ongoing instrument and analytical QC criteria are met in each package. This information will be included in the packages generated by the laboratory and will be evaluated during the validation.

The field QA/QC analytical results will also be compared to acceptance criteria, and documentation will be performed showing that those criteria have been met. Any samples in nonconformance with the QC criteria will be identified and reanalyzed by the laboratory, if possible. The laboratory for analyses of samples will employ the following QC procedures:

- Proper storage of samples.
- Use of qualified and/or certified technicians.
- Use of calibrated equipment traceable to National Bureau of Standards or

USEPA standards.

- Formal independent confirmation of all computations and reduction of laboratory data and results.
- Use of standardized test procedures.
- Inclusion of replicate samples at a frequency of one replicate per 20 samples (analyzed for the same parameters as the groundwater samples).
- Inclusion of field/rinseate blanks at a frequency of one sample per 20 samples (analyzed for the same parameters as the groundwater samples).

2.6 Instrument/Equipment Testing, Inspection, and Maintenance Requirements

Each instrument, used on the site, will be tested, cleaned, charged, and calibrating in accordance with the manufacturer's instruction before being taken into the field; tagged and signed out when in use; and its operating condition and cleanliness will be checked upon return. Routine checks will be made on the status of the equipment, and spare parts will be stocked. An equipment manual library will also be maintained. The laboratory also follows a well-defined program to prevent the failure of laboratory equipment and instrumentation (this information is contained in the LQAP, which has been provided under separate cover).

2.7 Instrument Calibration and Frequency

All field instrumentation will be calibrated daily prior to use. The calibration procedures are described for the following instruments:

- Water-level recorder (m-scope).
- photoionization detector (capable of detecting TCA).
- Combustible gas indicator.
- Survey equipment.

Barton & Loguidice has established a program for the maintenance of field equipment to ensure the availability of equipment in good working order when and where it is needed. An inventory of all equipment, used on the site, such as model and serial number, quantity, and condition, will be maintained.

2.8 Inspection/Acceptance Requirements for Supplies and Consumables

See the Laboratory LQAP (previously submitted under separate cover).

2.9 Data Acquisition Requirements (Non-Direct Measurements)

Not Applicable – Non-Direct Measurements (as defined in USEPA QAPP Guidance Document) are not being used in this phase of work.

2.10 Data Management

Results of analysis of soil samples will be transmitted by the laboratory on paper and in electronic format (typically on a 3.5" diskette). The electronic data will be formatted to allow the use of commercially available spreadsheet programs (e.g. – MS Excel, Lotus 123). Field data will be manually entered into spreadsheets from field logs.

3.0 ASSESSMENT/OVERSIGHT

The selected Laboratory is Upstate Laboratories of Syracuse, New York.

3.1 Assessments and Response Actions

System audits will be performed on a periodic basis, as appropriate; to assure that the RA field program is implemented in accordance with the SOW and in an overall satisfactory manner. Examples of systems audits that will be performed by Barton & Loguidice project personnel during the RA are as follows:

- On a timely basis, the data validator will review the data package submitted by the laboratory to check the following information: that all requested analyses were performed; that sample holding times were met; that the data were generated through the approved methodology with the appropriate level of QC effort and reporting; and that the analytical results are in conformance with the prescribed acceptance criteria. The data quality and limitations will be evaluated

on the basis of these factors.

- The project manager will oversee the Field Construction Inspector, and data validator, and check that the management of the acquired data proceeds in an organized and expeditious manner.

- Systems audits of the laboratory are performed on a regular basis by the USEPA, as well as by the NYSDEC. These audits will be discussed in the LQAP (previously submitted under separate cover).

Performance audits of laboratories participating in the CLP are performed quarterly in accordance with the procedures and frequencies established by USEPA for the CLP. The laboratory performance evaluation audits is discussed in the LQAP (previously submitted under separate cover).

The QA/QC program contained in this QAPP will enable problems to be identified, controlled, and corrected. Potential problems may involve non-conformance with the analytical procedures or other unforeseen difficulties. Any persons identifying an unacceptable condition will notify the field engineer, where applicable, and/or the project manager. The project manager, with assistance from the project QA/QC manager, will be responsible for developing and initiating appropriate corrective action and verifying that the corrective actions will be documented for a Corrective Action report.

Corrective actions may include repeating measurements, re-sampling and/or reanalysis of samples, and amending or adjusting project procedures. If warranted by the severity of the problem (*e.g.*, if monitoring wells require re-sampling or if the project schedule may be affected), the project coordinator and USEPA remedial project manager will be notified. Additional work, which is dependent upon an unacceptable activity, will not be performed until the problem has been eliminated.

The laboratory maintains an internal closed-loop corrective action system and this is described in the LQAP (previously submitted under separate cover).

3.2 Reports to Management

Regular QA reporting throughout the duration of the project, as well as reporting on

an as-needed basis will include the following:

- Monthly progress reports will be submitted to the USEPA remedial project manager. At a minimum these reports will include the following: a description of the activities that have taken place during the month; all validated results of sampling, tests, analytical data, and interpretations received; a description of all data anticipated and activities scheduled for the next month; and a description of any problems encountered or anticipated.

- Conference calls and/or meetings to be scheduled if requested by the project coordinator or by the USEPA remedial project manager to discuss any concerns that may arise during the course of the RA field program that might require significant corrective actions, changes in the scope of work, or departures from the approved project.

- Serious deficiencies in sampling and/or monitoring data will be reported to the USEPA as soon as practicable after such deficiencies have been noted.

The laboratory's internal QA reporting is described in the LQAP (previously submitted under separate cover).

4.0 DATA VALIDATION AND USABILITY

4.1 Data Review, Validation and Verification Requirements

The laboratory procedures for reducing, validating, and reporting the analytical data are described in the LQAP. The laboratory data will also be validated consisting of a systematic review of the analytical results and QC documentation. Data validation will be performed in accordance with the guidelines in "CLP Organics Data Review and Preliminary Review" (USEPA most recent edition) and "Evaluation of Metals Data for the Contract Laboratory Program (CLP)" (USEPA most recent edition), as modified by the Region 2 Data Validation Standard Operating Procedures.

4.2 Validation and Verification Methods

On the basis of this review, the data validator will make judgments and comments on the quality and limitations of specific data, as well as on the validity of the overall data package. The data validator will prepare documentation of his or her review and conclusions using the standard USEPA Inorganic Regional Data Assessment and Organic Regional Data Assessment forms to summarize any overall deficiencies that require attention. The data validator will also assess general laboratory performance. These forms will be accompanied by appropriate supplementary documentation, clearly identifying specific problems.

The data validator will inform the project manager of data quality and limitations, and assist the project manager in interacting with the laboratory to correct any data omissions and/or deficiencies. The laboratory may be required to rerun or resubmit data depending on the extent of the deficiencies, and their importance in meeting the data quality objectives within the overall context of the project.

Data validation will be performed by Don Anne' of Alpha Environmental Consultants. He has previously performed data validation of CLP data packages in USEPA Region II, as well as under the NYSDEC Analytical Services Program (ASP).

The validated laboratory data will be reduced into a computerized tabulation. The tabulated format will be suitable for inclusion in the RA report and will be designed to facilitate comparison and evaluation of the data. The data tabulations will be sorted by classes of constituents (*e.g.*, VOCs, semi-volatile organic, compounds, inorganic). Each individual table will contain the following information: sample number, analytical parameters, detection limits, concentrations detected, and qualifiers, as appropriate.

The field measurement data will be similarly reduced into a tabulated format suitable for inclusion in the RA report and will be designed to facilitate comparison and evaluation for the data. These tabulations will include but not be limited to the following information:

- Field screen (OVA) results.
- Field analyses (pH, temperature, and specific conductance).

Field logs will be transferred into typed formats or organized in their original form for inclusion as RA report appendices. The tables and logs will be compiled whenever feasible by the Field Construction Inspector, who will inform the project manager of any problems encountered during data collection, identify apparent inconsistencies, and provide opinions on the data quality and limitations. The tables and logs will be used as the basis for data interpretation and will be checked against the original field documentation by an independent reviewer prior to use.

4.3 Reconciliation with Data Quality Objectives

The field- and laboratory-generated data will be assessed for the PARCC parameters. Both quantitative and qualitative procedures will be used for these assessments. The criterion for assessment of field measurements will be that the measurements were taken properly using calibrated instruments. Assessment of the sampling data with respect to field performance will be based on the criteria that the samples were properly collected and handled. Field QC check sample results will also be considered in assessing the representativeness and comparability of the samples collected. The project manager will have overall responsibility for data assessment and integration of that assessment into data use and interpretation.

The laboratory will calculate and report the precision, accuracy, and completeness of the analytical data. Precision will be expressed as the relative percent difference (RPD) between values for duplicate samples. Accuracy will be expressed as percent recoveries (%R) for surrogate standards and matrix spike compounds. The precision and accuracy results will be compared to the prescribed QC acceptance criteria. For the organic and inorganic parameters, the QC acceptance criteria conform to control limits established in the CLP SOWs. Completeness is expressed as the percentage of valid data, based on the total amount of data intended to be collected.

Rigorous QA/QC procedures will be followed for the collection of samples. The SAMP sampling protocols will be strictly adhered to in order to maintain consistency in sampling and representativeness and comparability of the samples.

The assessment of data representativeness with respect to laboratory performance will be based on sample handling and analyses with respect to holding times and also on the method blank results. Data comparability will be assessed based on laboratory performance with respect to USEPA analytical protocols.

APPENDIX C

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

CLIENT: **Rosen Site Joint Defense Group**

SITE NAME: **Rosen Site**

SITE ADDRESS: **Cortland NY**

PROJECT NUMBER:

DATE PREPARED:

DATE(S) REVISED:

DATE EXPIRES:

HEALTH AND SAFETY PLAN APPROVALS

PROJECT MANAGER: Andrew Barber _____

Name Signature Date

FIELD CONSTRUCTION INSPECTOR/SITE SAFETY OFFICER: TBD _____

Name Signature Date

HEALTH & SAFETY MANAGER: TBD _____

Name Signature Date

ACKNOWLEDGMENTS:

TBD _____

Subcontractor Name Date

TBD _____

Subcontractor Name Date

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TABLES

ATTACHMENTS:

1.0 GENERAL INFORMATION

1.1 Introduction

This Health and Safety Plan (HASP) addresses those activities associated with the scope of work described in this plan and the Remedial Design (RD) and Remedial Action (RA) Work Plan for the Rosen Site. HASP will be used by Barton & Loguidice employees.

Any subcontractors working at the site will either adopt this plan for their employees or provide their own plan, which meets or exceeds the requirements of HASP. Any other health and safety plans proposed to be used on the site must be reviewed by EPA. The content of HASP may change or undergo revision based on additional information, monitoring results or changes in the scope of work.

This specific HASP has been prepared for the use of Barton & Loguidice and its employees and supplements the Health and Safety training that each Barton & Loguidice employee receives. Due to the potentially hazardous nature of the site covered by this plan and the activity occurring on the site, it is not possible to discover, evaluate, and provide protection for all possible hazards, which may be encountered. This plan is written for the specific site conditions, purposes, dates, and personnel specified, and must be amended if these conditions change.

Barton & Loguidice, therefore, cannot and does not assume any liability by the use or reuse of the plan by any client, contractor or their employees or agents in any another location. Any reliance on the HASP will be at the sole risk and liability of such party.

1.2 Acknowledgment

I acknowledge having reviewed this Health and Safety Plan, understand its contents and agree to abide by it. Additionally, I am current in the training and medical surveillance requirements specified in 29 CFR 1910.120. Hazardous Waste Operations and Emergency Response.

(Please Print Clearly)

NAME	DATE	COMPANY AFFILIATION
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

2.0 PROJECT INFORMATION

2.1 Site Description

The Rosen Site is approximately 20 acres in size, and is located on the southern side of the City of Cortland, New York. The site was used from roughly 1908 until 1971 for a wire mill operation. From 1971 to 1980, the site was used for the processing of scrap, primarily for the crushing and recycling of cars.

See the Remedial Action Work Plan for further detail and Site Map

2.2 Background Information

See the Remedial Action Work Plan for background information.

2.3 Purpose of Site Work

The objectives of the work to be conducted for the Rosen Superfund Site are to control the source of contamination at the site, to reduce and minimize the downgradient migration of contaminants in the and to minimize any potential future health and environmental impacts.

2.4 Scope of Work *(by task in order of execution)*

1. Excavation and re-location of TCA-contaminated soil;
2. Stabilization of the banks of Perplexity Creek and its tributary;
3. Design and construction of a cap on the former cooling pond;
4. Installation of a site-wide surface cover; and
5. Implementation of a sediment-monitoring program.

2.5 Utility Clearance

Will be performed by Underground Facility Protective Organization (UFPO): 1-800-962-7962

1. Date to be performed: 72-hours prior to excavating and/or subsurface drilling.
2. Methods utilized: UFPO contacts local utilities.

3.0 HEALTH AND SAFETY RISK ANALYSIS

3.1 Chemical Hazards

Different classes of contaminants have been detected in soil at the site, including metals, volatile organic compounds (VOCs) polychlorinated biphenyls and polynuclear aromatic hydrocarbons (PAHs). The principal routes of exposure to these contaminants are by ingestion of contaminated soil or groundwater, and by inhalation of contaminated soil (dust). Site-specific and chemical-specific information is provided in the following tables.

TABLE 3-1
KNOWN AND/OR PROBABLE CONTAMINANTS*

CONTAMINANT	SOURCE OF CONTAMINATION	SOURCE OF SAMPLE DATA (soil/water)	RANGE OF CONCENTRATION
Arsenic	Disposal	Soil	
Chromium	Disposal	Soil	
Manganese	Disposal	Soil	
Lead	Disposal	Soil	
Benzo(a)pyrene	Disposal	Soil	
PCBs	Disposal	Soil	
Toluene	Disposal	Soil	>1 mg/kg
Xylenes	Disposal	Soil	>1 mg/kg
Ethylbenzene	Disposal	Soil	>1 mg/kg
1,1,1-Trichloroethane	Disposal	Soil	>1 mg/kg
1,1,1-Trichloroethane	Disposal	Groundwater	ND-5000 ug/L
1,1-Dichloroethene	Disposal	Groundwater	
1,2-Dichloroethane	Disposal	Groundwater	
Trichloroethene	Disposal	Groundwater	ND-200 ug/L

*Source of data: Feasibility Study, Rosen Site, Cortland, New York; Blasland, Bouck & Lee, April 1997

TABLE 3-2

ASSESSMENT OF CHEMICALS OF CONCERN

Chemical Name (or class)	PEL/TLV	Other Pertinent Limits (Specify)	Warning Properties - Odor Threshold	Potential Exposure Pathways	Acute Health Effects	Chronic Health Effects
Arsenic	0.010 mg/m3	IDLH = 5 mg/m3	Metal	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation	Liver, kidney damage; lungs, lymphatic system
Chromium	0.5 mg/m3	IDLH = 25 mg/m3	Metal	Inhalation, Ingestion, Contact	Eye, skin & respiratory irritation	Eye, skin & respiratory system
Manganese	1 mg/m3	IDLH = 500 mg/m3	Metal	Inhalation, Ingestion	Confusion, fatigue, fever, vomit	Respiratory system; CNS; blood; kidneys
Lead	0.1 mg/m3 (NIOSH) 0.05 mg/m3 (OSHA)	IDLH = 100 mg/m3	Metal	Inhalation, Ingestion, Contact	Eye irritation; abdominal pain	Eyes, CNS, GI tract, CNS, gums, kidneys, blood,
Benzo(a)pyrene	0.1 mg/m3 (NIOSH) 0.2 mg/m3 (OSHA)	IDLH = 80 mg/m3	Hydrocarbon/ asphalt odor	Inhalation, Contact	Skin, lung irritation	Respiratory system, skin, bladder, kidneys
PCBs	0.001 mg/m3 (NIOSH)	IDLH = 5 mg/m3	Mild hydrocarbon odor	Inhalation, Absorption, Ingestion, Contact	Eye irritation, chloracne	Skin, eyes, kidneys, liver, reproductive system
Toluene	200 ppm (OSHA) / 100 ppm (NIOSH)	STEL = 150 ppm C = 300 ppm IDLH = 500 ppm	Colorless liquid with a sweet, pungent, benzene-like odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation; confusion dizziness, headache	CNS effects; liver, kidneys, dermatitis

Total Xylenes	100/100 ppm	STEL = 150 ppm IDLH = 900 ppm	Colorless liquid with an aromatic odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation; dizziness, drowsiness, nausea, vomit, headache, abdominal pain	Dermatitis, CNS effects, liver/kidney damage, blood
Ethylbenzene	100/100 ppm	STEL = 125 ppm IDLH = 800 ppm	Colorless liquid with an aromatic odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation; CNS effects; headache	Dermatitis, CNS effects
1,1,1-Trichloroethane	10 ppm (OSHA) / 10 ppm (NIOSH)	IDLH = 100 ppm	Colorless, oily liquid with a chloroform-like odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation	Eyes, respiratory system, CNS, liver, kidneys
1,1-Dichloroethane	100/100 ppm	IDLH = 3,000 ppm	Colorless, oily liquid with a chloroform-like odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation; depression; CNS effects	Dermatitis, CNS effects, liver, kidneys, lungs
1,2-Dichloroethene	200 ppm	IDLH = 1,000 ppm	Colorless liquid with a slightly acrid chloroform-like odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation; depression; CNS effects	Eyes, respiratory system, CNS
Trichloroethene	100 ppm OSHA)	IDLH = 1,000 ppm	Colorless, oily liquid with a chloroform-like odor	Inhalation, Absorption, Ingestion, Contact	Eye, skin & respiratory irritation; dizziness, drowsiness, nausea, vomit, headache, abdominal pain	Eyes, skin, respiratory system, heart; liver, CNS

PEL	=	OSHA Permissible Exposure Limit; represents the maximum allowable 8-hr.Time Weighted Average (TWA) exposure concentration.
TLV	=	ACGIH Threshold Limit Value; represents the maximum recommended 8-hr. TWA exposure concentration.
STEL	=	OSHA Short-term Exposure Limit; represents the maximum allowable 15 minute TWA exposure concentration.
TLV-STEL	=	ACGIH Short-term Exposure Limit; represents the maximum recommended 15 minute TWA exposure concentration.
C	=	OSHA Ceiling Limit; represents the maximum exposure concentration above which an employee shall not be exposed during any period without respiratory protection.
IDLH	=	Immediately Dangerous to Life and Health; represents the concentration at which one could be exposed for 30 minutes without experiencing escape-impairing or irreversible health effects.
TPH	=	Total Petroleum Hydrocarbons
VOC	=	Volatile Organic Compounds
()	=	ACGIH TLV Intended Change
OSHA	=	Occupational Safety and Health Administration
ACGIH	=	American Conference of Governmental Industrial Hygienists
CNS	=	Central Nervous System

3.2 Non-Chemical Hazards

Non-chemical hazards are associated with:

1. Slip, trip, and fall during all activities (uneven terrain);
2. Moving parts of heavy equipment;
3. Noise from heavy equipment;
4. Utility hazards;
5. Heat or cold stress depending on the season of work activity.

4.0 HEALTH AND SAFETY FIELD IMPLEMENTATION

4.1 Personal Protective Equipment (PPE) Requirements

PPE may be upgraded or downgraded by the Field Supervisor based upon site conditions and air monitoring results.

See Table 4-2 for PPE requirements.

4.2 Monitoring Equipment Requirements

Monitoring is conducted by the Field Supervisor or designee. Conduct contaminant source monitoring initially. Complete breathing zone monitoring if source concentrations are near or above contaminant action level concentrations. Log direct reading monitoring as specified in the Table 4-1 Monitoring Protocol, and record results on Direct Reading Report form. Direct reading instrumentation must be calibrated daily, prior to use, and results of the calibration shall be documented on Field Log. Field-screening instrumentation will be capable of quantifying TCA and all field instrumentation will be calibrated daily prior to use.

Table 4-1 also discusses the use of action levels to halt site work, based on the requirements of New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) 4031 and New York State Dept. of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP). Copies of the TAGM and CAMP are contained in Appendix D of the RAWP. The requirements of these documents are incorporated in this HSP by reference and as specifically identified in Table 4-1.

TABLE 4-1 MONITORING PROTOCOLS AND CONTAMINANT ACTION LEVELS				
CONTAMINANT/ ATMOSPHERIC CONDITION	**MONITORING EQUIPMENT**	**MONITORING PROTOCOL**	**BREATHING ZONE* ACTION LEVEL CONCENTRATIONS**	
			MONITORED LEVEL FOR MANDATORY RESPIRATOR USE	**MONITORED LEVEL** FOR MANDATORY WORK STOPPAGES
VOCs	Photoionization Detector (PID) such as an Organic Vapor Monitor (OVM)	Continuous monitoring. Initially, readings will be recorded every 15 minutes at beginning of task. If no sustained readings are obtained in the breathing zone, readings will be recorded every 30 minutes.	10 ppm	5 ppm over background at work zone perimeter, per New York State Dept. of Health (NYSDOH) Community Air Monitoring Plan (CAMP)
Flammable Organics	Combustible Gas Indicator (CGI)	Prior and during initial soil disturbance. Periodically to check monitoring wells and gas vents.		Work will be discontinued if the CGI readings are 10 percent of the LEL. Work will not resume until the readings drop below 10 percent of the LEL.
Particulates	MiniRam or equivalent	Three times daily when work is being conducted which can generate dust, e.g. – waste exhumation, movement and placement of cap construction materials (sand, soil, etc.).	150 ug/m3 per NYSDEC TAGM 4031	150 ug/m3 at fenceline per NYSDEC TAGM 4031 and NYSDOH CAMP
* Monitoring performed at operator's breathing zone. Monitor at the source first; if the source concentration is near or above the action level concentration, monitor in the breathing zone.				
** Call the Project Manager and Health and Safety Manager for consultation.				

TABLE 4-2
PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

JOB TASKS	PPE							LEVEL OF PROTECTION	LEVEL OF UPGRADE	ADDITIONAL PPE FOR UPGRADE	MONITO-RING EQUIPMENT
	SUIT	GLOVES	FEET	HEAD	EYE	EAR	RESPIRATOR				
1. 1 & 3	Std.	Work	Steel	HH	Glass/ Goggles	Plugs	N/A	D	C	Full APR	PID
2. 2	Std.	V/N	Steel	N/A	N/A	N/A	N/A	D	C	Full APR	PID

Personal Protective Equipment (PPE):

SUIT:

Std	=	Standard work clothes
Tyvek	=	Uncoated Tyvek disposable coverall
PE Tyvek	=	Polyethylene-coated Tyvek
Chemrel	=	Chemrel coverall with hood
Saranex	=	Saranex-laminated Tyvek
Lt PVC	=	Light wt. PVC rain gear
Med PVC	=	Medium wt. PVC suit
Hvy PVC	=	Heavy wt. PVC coverall with hood
Road	=	Roadwork vest
Nomex	=	Nomex coveralls

GLOVES:

Work	=	Work gloves (canvas, leather)
Neo	=	Neoprene gloves
PVC	=	PVC gloves
N	=	Nitrile gloves
V	=	Vinyl gloves
L	=	Latex gloves

Personal Protective Equipment (PPE):

FEET:

Steel	=	Steel-toe boots
Steel+	=	Steel-toe Neoprene or PVC boots
Booties	=	PVC or Latex booties

HEAD:

HH	=	Hard hat

EYE:

Glass	=	Safety glasses
Goggle	=	Goggles
Shield	=	Face shield

EAR:

Plugs	=	Earplugs
Muff	=	Ear muffs

Personal Protective Equipment (PPE):

RESPIRATOR:

APR	=	Air-purifying respirator
Full APR	=	Full face APR
Half APR	=	Half face APR
PAPR	=	Powered Air-purifying Respirator
SAR	=	Airline supplied air respirator
SCBA	=	Self contained breathing apparatus
Escape	=	Escape SCBA
OV	=	Organic vapor cartridge
AG	=	Acid gas cartridge
OV/AG	=	Organic vapor/acid gas cartridge
AM	=	Ammonia cartridge
D/M	=	Dust/mist pre-filter and cover for cartridge
HEPA	=	High efficiency particulate air filter cartridge

OTHER:

*	=	Use if contact with wet soil or water
**	=	Optional use except if specific hazard present

Return all completed Health and Safety plan forms to the Project Manager for review and signature and then to the Health and Safety Manager.

4.3 Decontamination Procedures

Depending on the specific job task, decontamination may include personnel themselves, sampling equipment, and/or heavy equipment. The specified level of protection for a task (A, B, C, or D) does not in itself define the extent of personal protection or equipment decontamination. For instance, Level C without dermal hazards will require less decontamination than Level C with dermal hazards. Heavy equipment will always require decontamination to prevent cross-contamination of samples and/or facilities. The following sections summarize general decontamination protocols.

4.3.1 Heavy Equipment

Heavy equipment will be decontaminated following episodes of working with heavily contaminated soil/debris or prior to removal from the site. Decontamination of heavy equipment will be done prior to personnel decontamination at a location to be determined by the Field Supervisor. Containment systems will be set-up for collections of decon fluids and materials. Berms and wind barriers will be set up, if appropriate. Heavy equipment decontamination will be primarily accomplished by washing with a high-pressure water spray. If needed, detergent solution will be used along with scrubbing to remove dirt and contaminants from equipment surfaces.

4.3.2 Personnel

Use steps and procedures outlined below as guidelines for personnel decontamination:

- Brush loose soil from body;
- Suit removal (where appropriate);
- Respirator/hard hat removal (where appropriate);
- Respirator wash (where appropriate);
- Glove removal; and

- Field wash hands;
- Boot removal (where appropriate).

4.3.3 Samples and Sampling Equipment

The decontamination of sampling equipment will be accomplished by using the following procedures:

- Detergent/water wash;
- Tap water rinse:
- 10% nitric acid (ultra pure) rinse (if sampling is metals);
- Deionized/distilled water rinse;
- Acetone only or methanol/hexane rinse (pesticide grade or better);
- Deionized/distilled water rinse;
- Air dry

During periods of transportation and non-use, decontaminated sampling equipment will be wrapped on aluminum foil. The same contamination line will be used for sampling equipment decon as is used for personnel decon.

4.3.4 Decon Wastes

Spent decon solutions may be required to be drummed and disposed of as hazardous waste, and/or solvent solutions may be required to be segregated from water rinses. Decontamination shall be performed in a manner that minimizes the amount of waste generated. If needed, decontamination derived wastes will be drummed; drums will be properly labeled and staged on pallets.

4.4 Medical Monitoring

Medical monitoring of employees engaged in hazardous waste operations is conducted consistent with the requirements of 29 CFR 1910.120. The medical monitoring

program consists of minimum yearly physicals, including the following:

- Physical examination
- Blood pressure
- Vision Urinalysis
- Pulmonary Fitness Test
- Blood analysis CBC/CP
- Chest x-ray
- EKG

5.0 SITE OPERATING PROCEDURES

5.1 Initial Site Entry Procedures

- Locate nearest available telephone.
- Prior to working on-site, conduct an inspection for physical and chemical hazards.
- Conduct or review utility clearance prior to start of work, if appropriate.
- Note any specialized protocols particular to work tasks associated with the project.

5.2 Daily Operating Procedures

- Hold Tailgate Safety Meetings daily prior to work start and as needed thereafter.
- Use monitoring instruments and follow designated protocol and contaminant action levels.
- Use personal protective equipment (PPE) as specified.
- Use hearing protection when working around heavy equipment.
- Remain upwind of operations and airborne contaminants, if possible.
- Establish a work/rest regime when ambient temperatures and protective clothing create a potential heat stress hazard.

- Do not carry cigarettes, gum, etc. into contaminated areas.
- Refer to Field Supervisor for specific safety concerns for each individual site task.
- Be alert to your own physical condition.
- All accidents, no matter how minor, must be reported immediately to the Field Supervisor.

5.3 Site Control

The exclusion zone for RA Construction Activities is shown on Figure C-1. Access to this area will be limited to authorized personnel from Nixon Peabody, the Rosen Site Joint Defense Group, B&L, Clean Harbors, regulatory agencies and contractors/ subcontractors to B&L or Clean Harbors. Decontamination (personnel and equipment) will be conducted within the work zone, as shown on Figure C-2. Based on the current site configuration and anticipated work activities, movement of these zones is not planned.

6.0 EMERGENCY RESPONSE PROCEDURES

6.1 Emergency Incident Procedures

The nature of work at contaminated or potentially contaminated work sites makes emergencies a continual possibility. Although emergencies are unlikely and occur infrequently, a contingency plan is required to assure timely and appropriate response actions. The contingency plan is reviewed at tailgate safety meetings. Based on the type of work to be conducted and the concentrations of contaminants at the site, the capabilities of local emergency service providers (e.g. – fire department, hospital) are anticipated to be fully sufficient to address site-related emergencies. A copy of this document will be put into the public repository to apprise the public of health and safety procedures at the site.

6.1.1 Emergency Incident Procedures

If an emergency incident occurs, the following actions will be taken by Field Construction Inspector:

Step 1: The situation will be sized-up based on the available information.
Step 2: Field Construction Inspector will notify the Project Manager.
Step 3: As appropriate, Field Construction Inspector will evacuate site personnell and notify emergency response agencies (police, fire, etc.).
Step 4: As necessary, Field Construction Inspector will request assistance from outside sources, and/or allocate personnel and equipment resources for response.
Step 5: Field Construction Inspector will Consult the posted emergency phone list, and contact key project personnel.
Step 6: Field Construction Inspector will prepare an incident report and forward this report to Project Manager or Health and Safety Manager within 24 hours.

6.1.2 Medical Emergencies

If a medical emergency occurs, the following actions will be taken by Field Construction Inspector:

Step 1: Field Construction Inspector will assess the severity of the injury.
Step 2: Field Construction Inspector or his designee will perform life-saving first aid/CPR as necessary to stabilize the injured person.
Step 3: Field Construction Inspector will get medical attention for the injured person immediately. (Call 911 or consult the Emergency Contacts list which must be posted at the site).
Step 4: Depending on the type and severity of the injury the injured employee will be transported to the nearest hospital emergency room or nearby medical clinic.
Step 5: Field Construction Inspector will prepare an incident report and

forward this Report to Project Manager or Health and Safety Manager within 24 hours.

6.1.3 Site-Specific Procedure

Refer to Field Construction Inspector for specific procedures.

6.2 Emergency Routes

1. Hospital route *(TO BE POSTED)* see Figure C-3.
2. Emergency contacts see Attachment 1.

6.3 Site-Specific Requirements in Event of an Emergency:

6.3.1 Notifications *(Name, Title, Phone)*

Cortland Fire Department	**911** or (607) 756-5613
NY State Police	(607) 756-5604
Cortland Ambulance Service	**911**
Cortland Memorial Hospital	(607) 756-3500

6.3.2 Evacuation Route

Identify Evacuation Route: Pendleton Street Gate

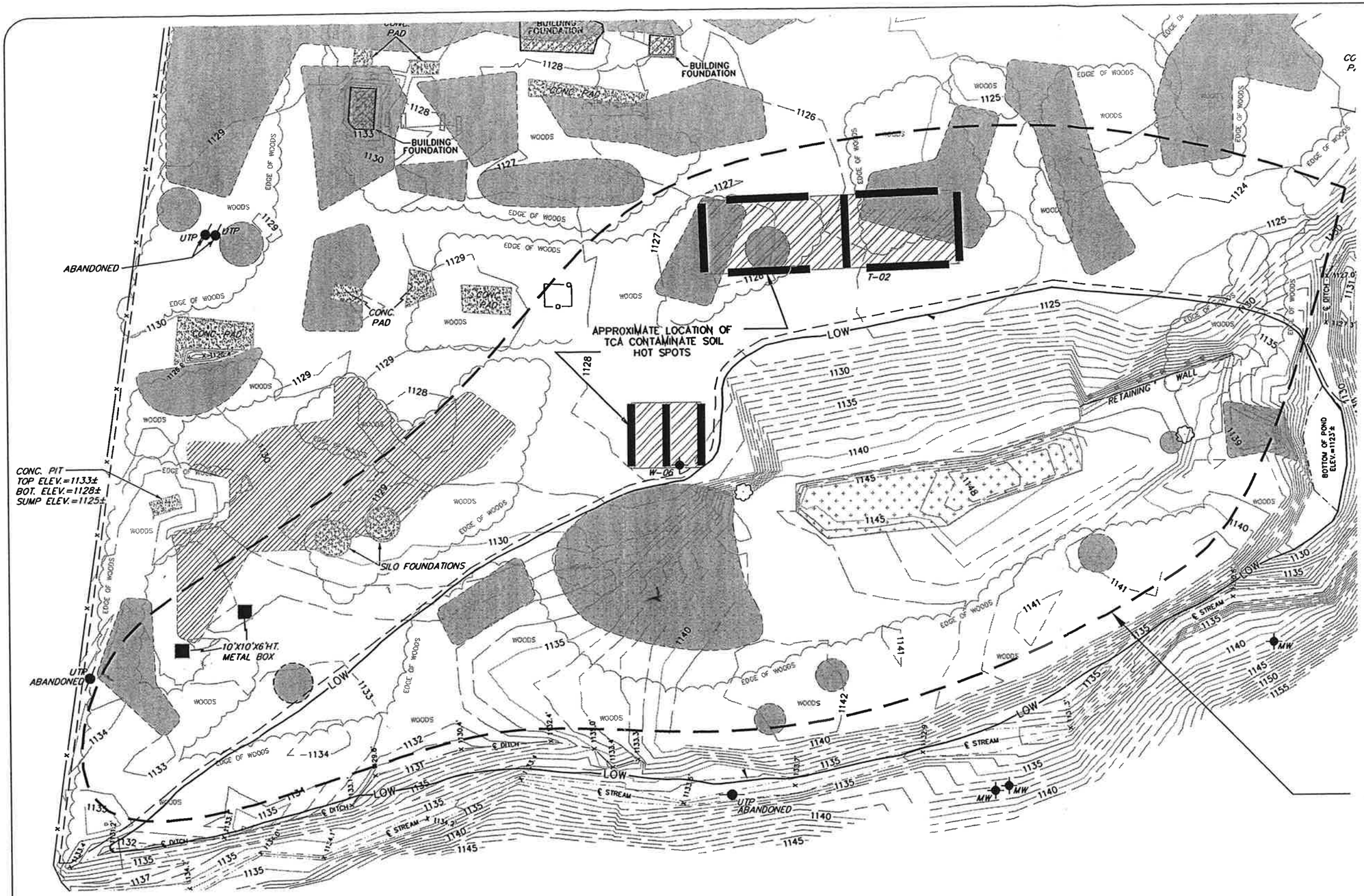
Identify Meeting Area (Perform Head Count): Pendleton Street Gate

6.3.3 Spill Containment Plan *(Specify)*

1. Not Applicable

ATTACHMENT 1

EMERGENCY CONTACTS (To be Posted)		
TITLE	**NAME**	**PHONE NUMBER**
EMERGENCY		
Police	NY State Police	**911** (607) 756-5604
Fire	Cortland Fire Department	**911** (607) 756-5613
Local Hospital	Cortland Memorial Hospital	(607) 756-3500
Local Ambulance/Rescue	Cortland Ambulance Service	**911**
Poison Control Center		(800)336-6997
Haz. Waste Natl. Response Center	HAZMAT	(800) 424-8802
PROJECT/BUSINESS		
Project Manager	Andrew Barber	(518) 218-1801
Health and Safety Manager	TBD	(315) 457-5200
Field Supervisor	TBD	(315) 457-5200
Client Contact	David Armanini	(716) 263-1577
Site Contact		
Subcontractor		
Subcontractor		



BORDER OF EXCLUSION ZONE

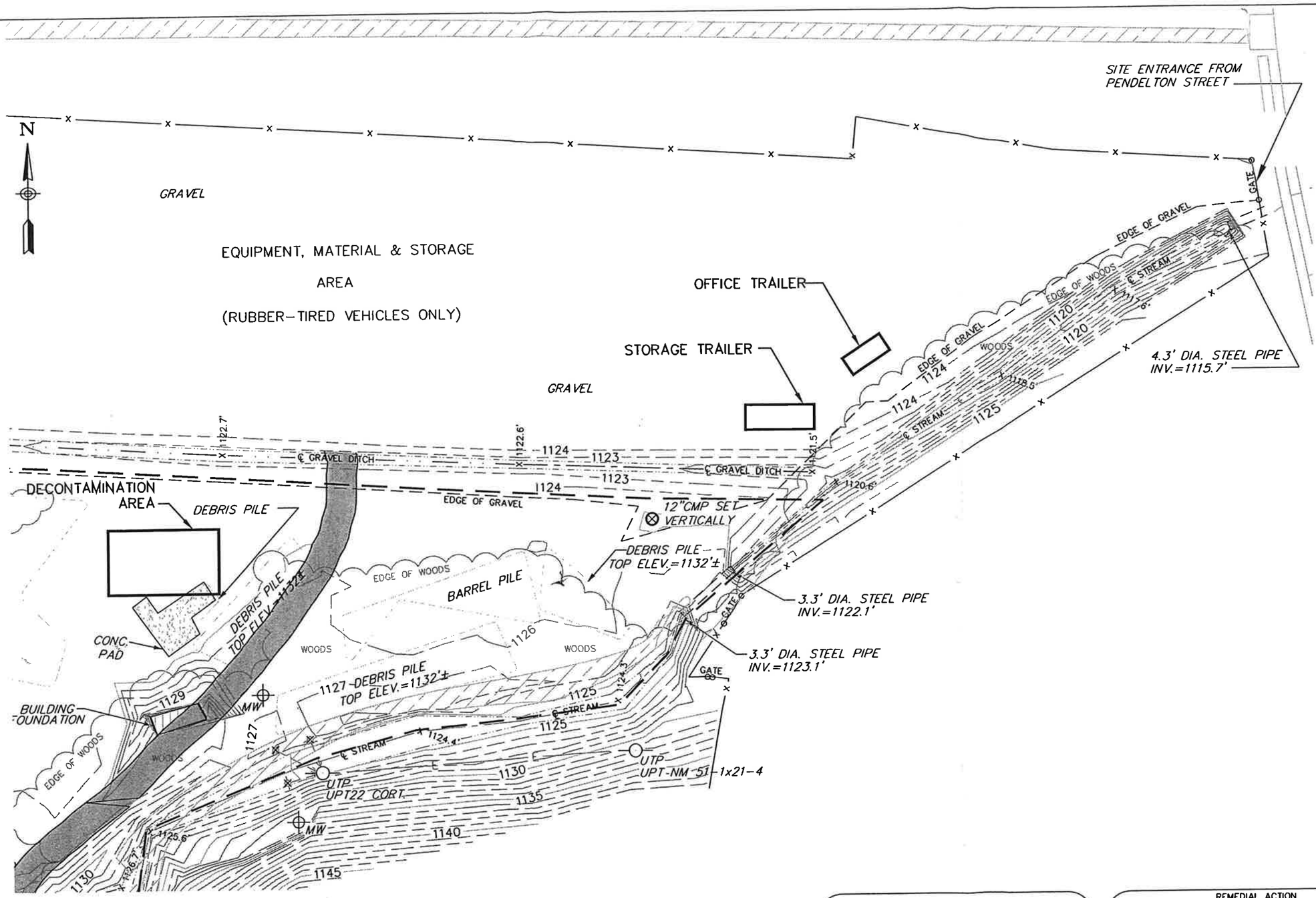
Barton & Loguidice, P.C.
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

REMEDIAL ACTION
ROSEN SUPERFUND SITE

EXCLUSION ZONE

CITY OF CORTLAND CORTLAND COUNTY, NEW YORK

Figure
C-1
Project No.
617.001



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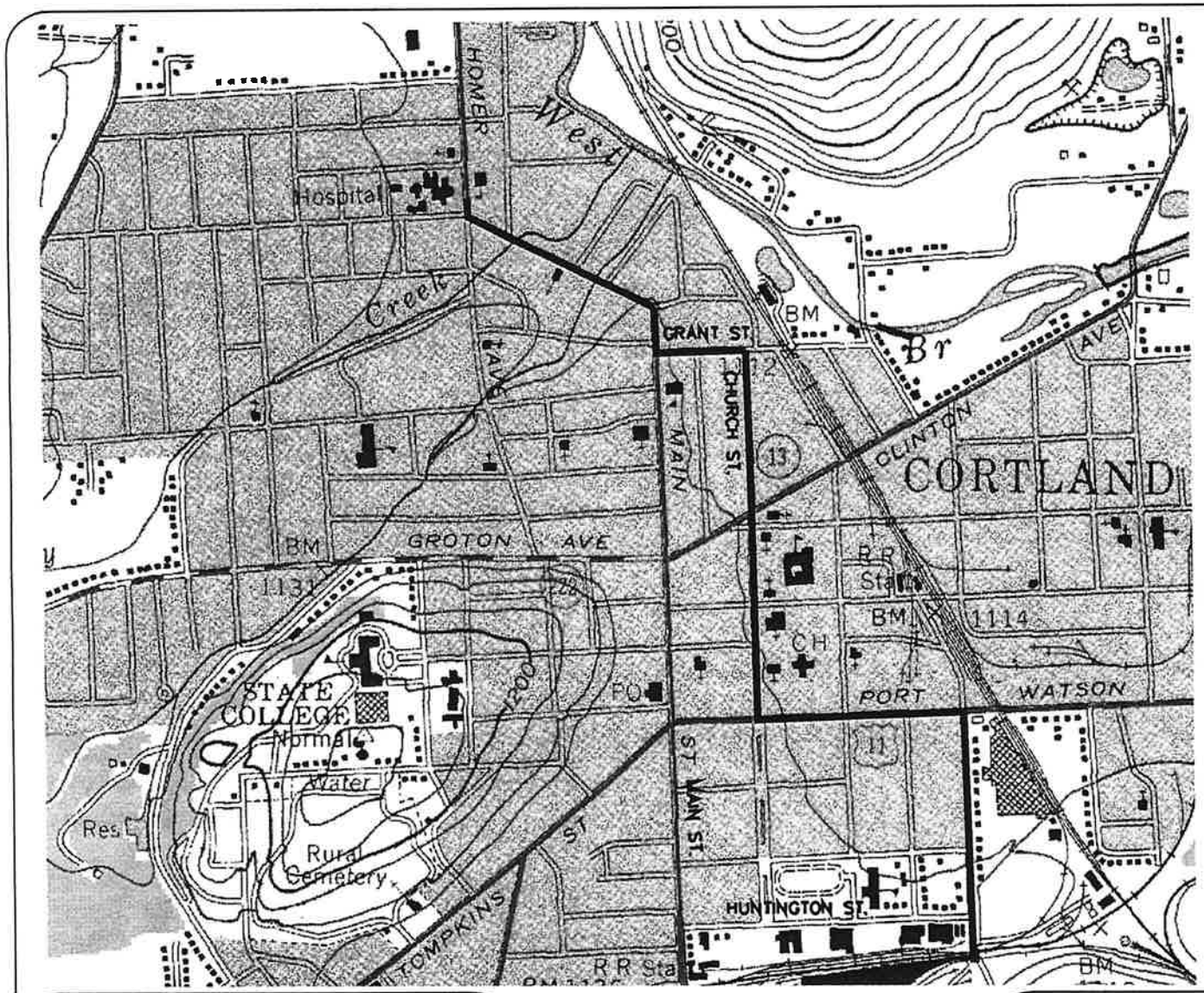
Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

REMEDIAL ACTION
ROSEN SUPERFUND SITE

PROPOSED SUPPORT FACILITIES LOCATION

CITY OF CORTLAND CORTLAND COUNTY, NEW YORK

Figure
C-2
Project No.
617.001



DIRECTION:

- From Pendlenton Street gate proceed north several blocks to Port Watson Street;
- Turn left on Port Watson St., and proceed several blocks to Church St.;
- Turn right on Church St, and proceed to Grant St. (end of Church St.);
- Turn left on Grant St. and proceed to the end of Grant St. which will be the intersection of Grant St. and Main St.
- Turn right on Main St. and go to Homer Ave.

Cortland Memorial Hospital is on the corner of Homer Ave. and Main St.

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Consulting Engineers
290 Elwood Davis Road / Box 3107, Syracuse, New York 13220

REMEDIAL ACTION
ROSEN SUPERFUND SITE

HOSPITAL ROUTE

CITY OF CORTLAND CORTLAND COUNTY, NEW YORK

Figure
C-3
Project No.
617.001

APPENDIX D

NYSDEC TAGM 4031

HWR-89-4091
October 27, 1989

New York State Department of Environmental Conservation

MEMORANDUM

TO: Regional Hazardous Waste Remediation Engrs., Bur. Directors & Section Chiefs
FROM: Michael J. O'Toole, Jr., Director, Division of Hazardous Waste Remediation
SUBJECT: DIVISION TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM--FUGITIVE DUST SUPPRESSION AND PARTICULATE MONITORING PROGRAM AT INACTIVE HAZARDOUS WASTE SITES
DATE: OCT 2 7 1989

1. Introduction

Fugitive dust suppression, particulate monitoring, and subsequent action levels for such must be used and applied consistently during remedial activities at hazardous waste sites. This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2. Background

Fugitive dust is particulate matter--a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles, liquid droplets or solids, over a wide range of sizes--which becomes airborne and contributes to air quality as a nuisance and threat to human health and the environment.

On July 1, 1987, the United States Environmental Protection Agency (USEPA) revised the ambient air quality standard for particulates so as to reflect direct impact on human health by setting the standard for particulate matter less than ten microns in diameter (PM_{10}); this involves fugitive dust whether contaminated or not. Based upon an examination of air quality composition, respiratory tract deposition, and health effects, PM_{10} is considered conservative for the primary standard--that requisite to protect public health with an adequate margin of safety. The primary standards are 150 ug/m^3 over a 24-hour averaging time and 50 ug/m^3 over an annual averaging time. Both of these standards are to be averaged arithmetically.

There exists real-time monitoring equipment available to measure PM_{10} and capable of integrating over a period of six seconds to ten hours. Combined with an adequate fugitive dust suppression program, such equipment will aid in preventing the off-site migration of contaminated soil. It will also protect both on-site personnel from exposure to high levels of dust and the public around the site from any exposure to any dust. While specifically intended for the protection of on-site personnel as well as the public, this program is not meant to replace long-term monitoring which may be required given the contaminants inherent to the site and its air quality.

3. Guidance

A program for suppressing fugitive dust and monitoring particulate matter at hazardous waste sites can be developed without placing an undue burden on remedial activities while still being protective of health and environment. Since the responsibility for implementing this program ultimately will fall on the party performing the work, these procedures must be incorporated into appropriate work plans. The following fugitive dust suppression and particulate monitoring program will be employed at hazardous waste sites during construction and other activities which warrant its use:

(1) Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

(2) Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Such activities shall also include the excavation, grading, or placement of clean fill, and control measures therefore should be considered.

(3) Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM_{10}) with the following minimum performance standards:

Object to be measured: Dusts, Mists, Aerosols
Size range: <0.1 to 10 microns
Sensitivity: 0.001 mg/m^3
Range: 0.001 to 10 mg/m^3
Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust

Operating Conditions:
Temperature: 0 to 40°C
Humidity: 10 to 99% Relative Humidity

Power: Battery operated with a minimum capacity of eight hours continuous operation

Automatic alarms are suggested.

Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. Consequently, instrumentation shall require necessary averaging hardware to accomplish this task; the P-5 Digital Dust Indicator as manufactured by MDA Scientific, Inc. or similar is appropriate.

(4) In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the entity operating the equipment to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

(5) The action level will be established at 150 ug/m^3 over the integrated period not to exceed 15 minutes. While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m^3, the upwind background level must be measured immediately using the same portable monitor. If the working site particulate measurement is greater than 100 ug/m^3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see Paragraph 7). Should the action level of 150 ug/m^3 be exceeded, the Division of Air Resources must be notified in writing within five working days; the notification shall include a description of the control measures implemented to prevent further exceedences.

(6) It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM_{10} at or above the action level. Since this situation has the potential to migrate contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

(7) The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

1. Applying water on haul roads.
2. Wetting equipment and excavation faces.
3. Spraying water on buckets during excavation and dumping.
4. Hauling materials in properly tarped or watertight containers.
5. Restricting vehicle speeds to 10 mph.
6. Covering excavated areas and material after excavation activity ceases.
7. Reducing the excavation size and/or number of excavations.

Experience has shown that utilizing the above-mentioned dust suppression techniques, within reason as not to create excess water which would result in unacceptable wet conditions, the chance of exceeding the 150 ug/m^3 action level at hazardous waste site remediations is remote. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

(8) If the dust suppression techniques being utilized at the site do not lower particulates to an acceptable level (that is, below 150 ug/m^3 and no visible dust), work must be suspended until appropriate corrective measures are approved to remedy the situation. Also, the evaluation of weather conditions will be necessary for proper fugitive dust control--when extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended.

There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require appropriate toxics monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

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Rosen Site July 2001 RD Addendum 1: Enclosure A

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, commonsense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably

consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring

particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.