PROJECT WORK PLAN
ENVIRONMENTAL ASSESSMENT FOR DAMIANI AND EMPIRE STATE CHAIR FACTORY SITES
VILLAGE OF HAVERSTRAW, NEW YORK

VILLAGE OF HAVERSTRAW
NEW YORK

FEBRUARY 2004

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1.0 INTRODUCTION

Malcolm Pirnie, Inc. (Malcolm Pirnie) has been selected by the Village of Haverstraw, NY to perform a Phase I and II environmental assessment of the Damiani Property (Section 27.46, Block 1, Lot 80 (1.3 acres) and Lot 81 (.15 acres)) 4 Allison Avenue and the Empire State Chair Factory Property (Section 27.09, Block 1, Lot 3 (7 acres upland and 2.7 acres underwater)) 30 Liberty Street. The Village's intent is to conduct this work with funding from the New York State Department of Environmental Conservation (NYSDEC) Clean Water/Clean Air Bond Act (Brownfields Program), and therefore, the scope and actual work activities for this project will be carefully coordinated with NYSDEC Region 3 and Albany representatives. The Village has submitted a grant application to the NYSDEC for this project. Phase I of the project scope will be paid for with separate funding provided by the EPA.

Both of the project sites border the Village of Haverstraw waterfront. The Damiani site, at some point in the past, may have been used to store above ground fuel storage tanks. The site was also reportedly used to store vehicles in a garage structure that no longer exists on site. It is possible that debris may have also been dumped on the property. The Chair Factory site was historically used to assemble and finish chairs. There is an existing mason block building on site that was reportedly used to assemble and finish the chairs. At some point the building was later expanded. The property near the building was reportedly used to store containers filled with lacquer for finishing the chairs. Uncharacterized materials may have also been deposited on site.

The Phase I portion of this study will be useful to understand past activities at each of the sites and to keep the Phase II field studies focused. The Phase II portion of the study includes the initial field investigations that will include the collection of environmental samples for laboratory analysis and the excavation of exploratory test pits. The work is intended to evaluate potential adverse environmental impacts to the site from off-site sources and to investigate reports and visual indications of unauthorized dumping at the site.

2.0 PURPOSE

The environmental field investigations outlined in this Work Plan were designed to accomplish the following objectives:

- Evaluate the presence or absence of soil contamination on the Damiani and Chair Factory properties
- Evaluate environmental quality of sediments along the nearby shoreline
- Evaluate the groundwater quality at each of the properties
- Characterize buried debris present beneath the properties via test pit excavation
- Characterize the materials within the building structure on the Chair Factory site
- Meet or exceed NYSDEC data quality objectives
- Incorporate NYSDEC input to proposed Work Plan and address the requirements of the Brownfields Guidance Memo (TAGM 4058)
- Provide useful data to support redevelopment of the properties as part of the Village's overall waterfront redevelopment plans

As previously noted, the Phase I study results will allow the field investigation work to be focused on site-specific issues and will help to develop a site specific sampling location map. Therefore, following the completion of the Phase I work this Work Plan will be amended to incorporate the Phase I findings and to include a site map illustrating sampling locations and number of samples for each environmental media proposed for collection as part of Phase II. At this time, this Work Plan provides a general outline of the fieldwork that may be undertaken as part of Phase II.

3.0 Phase I Study

The Phase I study will include the compilation of information regarding each of the sites that will be used to develop a thorough site description including historical activities that have taken place at each of the properties. The information is collected through various sources described below.

3.1 Site Reconnaissance

A site field visit will be conducted to perform visual observations of the site's features, and to develop a description of adjacent land uses and identify any visible environmental concerns. During the field visit environmental samples will not be collected. Information is also obtained through interviews with individuals with knowledge of the properties.

3.2 Historical Site Uses

Reasonably ascertainable historical sources will be used to obtain information on site history. The main sources include historical aerial photographs and Sanborn Fire Insurance Maps.

3.3 Records Review

A review of existing records will be performed. Records will be requested from the County, Village and government environmental databases.

The findings from the Phase I work will be incorporated into an amended Work Plan and will be reported in the Site Investigation/Remedial Alternatives Report (SIRAR).

3.4 Supplemental Environmental Considerations

As part of the Phase I work we will conduct visual observations of reasonably accessible areas of the building located on the Chair Factory property. The primary focus will be to identify potentially hazardous materials such as asbestos containing materials and/or the presence of lead based paint. Other materials of concern will also be noted.

4.1 Soil Vapor Survey and Metal Detector Survey

4.1.1 Objective

The objective of the soil vapor and metal detector survey is to systematically screen upland portions of the properties for subsurface volatile organic contamination and buried metal. The results of the screening were to be used to select soil sampling and test pit excavation locations.

A 50 ft. by 50 ft. grid will be established on the upland portions of properties to accurately document sample locations and detection points.

4.1.2 Soil Vapor Survey

A soil vapor survey will consist of the use of a hollow probe to withdraw soil vapor from the subsurface. The collected soil vapor is subsequently screened for the presence of volatile organic contaminants using a Photoionization Detector (PID). This procedure is effective only in the unsaturated soil zone (above the groundwater table).

At each grid node, a "slam bar" will be used to create a vertical penetration in the soil. The slam bar is driven into the ground and is then withdrawn and the soil vapor probe immediately inserted by hand.

A handheld air-sampling pump is connected to the soil vapor probe using dedicated tubing. The air-sampling pump is used to purge ambient air from the probe and draw in soil vapor. The air-sampling pump is then disconnected after 30 seconds of purging and the PID attached to the soil vapor probe. The PID screening results for each grid node are then recorded.

The exterior of the soil vapor probe is decontaminated between grid nodes using a deionized water rinse and air dry. The rinse is used to remove soil clumps/particles between locations and avoid cross-contamination.

To check the efficacy of the decontamination procedure, ambient "air blanks" are typically collected subsequent to each location where volatile organics are detected. Following the decontamination rinse and air dry, ambient air is drawn through the soil vapor probe and screened using the PID. If the PID detects volatile organics above

ambient background, the decontamination procedure is repeated and/or probe purging using the air-sampling pump is conducted, until the "air blank" readings decrease to background. Air blank readings are also recorded.

4.1.3 Metal Detector Survey

Metal detectors are designed to sense the presence of ferromagnetic objects in the subsurface. The same grid system that is used for the gas readings is used for the metal detector work to investigate for the presence of buried metal objects and locate detection points.

The GA-72cd's output is a numerical reading of signal strength (in differential milli-gauss) and magnetic field polarity. The detector output at each grid node is recorded in the field log book.

4.2 Sediment Sampling

4.2.1 Objective

Sediment samples will be collected from the nearby shoreline in an attempt to determine whether or not on-site contamination, if existing, is migrating away from the project site via sediments.

4.2.2 Sediment Sampling Procedure

It is anticipated at this time that the sediment samples will be collected using a decontaminated carbon steel post-hole digger. It is Malcolm Pirnie's experience that post-hole diggers are very effective for the collection of surface and near-surface samples in moist or saturated soils.

4.2.3 Sediment Sample Analyses

Sediment sample analytical parameters are listed in Table 5-1.

4.3 Test Pit Excavation

Visual observations and the results of the Metal Detector Survey will be used to select locations for test pit excavation. The purpose of the test pits will be to characterize

the type of waste and debris disposed at the site and to investigate the horizontal and vertical extent of buried waste, if existing.

The test pits will be excavated using a conventional backhoe. Additional test pit locations may be selected based on the results of visual and metal detector observations collected during sediment sampling.

The test pit excavation activities will be photodocumented. Soil types and descriptions of waste encountered will be recorded in the field logbook along with their approximate depth below grade. Each test pit will be backfilled with native material at the conclusion of field activities.

4.4 Hand Auger Soil Sampling

4.4.1 Objective and Sampling Locations

Stainless steel, bucket-type hand augers will be used to advance soil borings in upland areas on the Damiani and Chair Factory properties to investigate for soil contamination.

Hand auger sampling will be conducted at selected locations and a background location will also be collected with input from NYSDEC. The soil sampling will be conducted subsequent to the test pit excavations. If visual indications of contamination are encountered during test pit activities, a soil sample will be collected for laboratory analysis and the number of hand auger samples will be adjusted accordingly.

4.4.2 Hand Auger Sampling Procedure

Soil samples will be collected at 6-inch intervals to a depth of 6 feet below ground surface, or the groundwater/soil interface. Prior to sampling and between each sample collection point, decontamination of sampling tools and equipment will be conducted as described in Section 3.6, Decontamination Procedures.

At each sampling location, the hand auger will be advanced in 6-inch depth increments. The hand auger will be withdrawn from the soil after each 6-inch depth interval and the sample removed into a dedicated, laboratory-decontaminated stainless steel mixing bowl. An aliquot for volatile organic analysis will be immediately transferred into the appropriate laboratory jars and stored in a sample cooler.

A second soil aliquot will be removed and placed in a plastic bag for a "headspace screening." The bag will be labeled and stored for approximately 30 minutes in a warm place (for example, the cab of the field vehicle). After approximately 30 minutes have elapsed, the tip of the PID will be inserted into the bag to measure the concentration of volatile organics in the bag headspace. The PID measurements will be recorded in the field logbook and used to select a single depth interval from each boring for TCL Volatile Organics analysis.

The remaining soil material in the stainless steel bowl will be homogenized and set aside (cover stainless bowl with aluminum foil). At the completion of each hand auger boring, aliquots of equal volume from each depth interval will be combined and homogenized to create a composite sample. The composite sample will be placed in laboratory jars appropriate for analysis for TCL Semivolatile Organics, Pesticides, PCBs, TAL Metals, and Cyanide.

4.4.3 Soil Sample Analyses

Soil sample analytical parameters are listed in Tables 5-1 and 5-2.

4.5 Groundwater Sampling

Regarding groundwater sampling we would initially propose to collect groundwater samples by advancing a decontaminated Geoprobe SP-15 screen point section into the groundwater table. Once the selected sampling depth is reached, a slot screen point is opened remotely so that groundwater can enter the direct push tool. Formation water is pumped through the screen section using dedicated Teflon tubing and a check valve to attempt to minimize turbidity of the discharged groundwater. This approach is a cost-effective way to collect groundwater samples during a Phase II study and has been accepted by the NYSDEC on past projects. Depending on the level of contamination identified, follow-up studies may require more permanent well installation for long term monitoring. Even in the case of permanent well installation, on past projects we have successfully used the geoprobe rig to install permanent wells at a significantly lower cost than a drill rig. Ultimately, specific site stratigraphy will dictate whether or not the geoprobe rig will be effective. Tighter geologic formations could pose challenges during boring activities.

4.7 Environmental Sampling in Bnilding (Chair Factory Property)

Depending on the observations during the Phase I walkthrough and subsequent observations during the Phase II fieldwork, samples may need to be collected from the existing building structure at the Chair Factory site. At this time it is not known what samples will be taken or what analysis will be required. Typically for older structures such as that located at the Chair Factory site, paint chips or insulation samples may be collected and analyzed for lead and asbestos respectively. The results will be helpful in identifying appropriate remediation measures for the building and opinion of costs for disposal. Sample media and number of samples will be determined following the Phase I work.

4.8 Decontamination Procedures

To prevent the possibility of cross-contamination between sampling locations, the hand auger will be decontaminated prior to use and between all sampling locations.

Other sampling equipment (stainless steel bowls, trowels, etc.) will be dedicated and laboratory-decontaminated. Should any of this equipment require reuse, it will be decontaminated according to the following sequential rinse procedure:

- Washed and scrubbed with low phosphate, laboratory-grade detergent (Alconox or equivalent) in clean tap water
- Rinsed thoroughly (3X) with tap water
- Rinsed twice with deionized water
- Rinsed with Isopropyl Alcohol for Volatiles (use sparingly and separate solvent rinsate from other spent decontamination solutions)
- Rinsed with Methanol for Semivolatiles and Pesticides/PCBs (use sparingly and separate solvent rinsate from other spent decontamination solutions)
- Air dried
- Rinsed twice with deionized or demonstrated analyte-free water
- Air dried

Decontamination waste, consisting of spent alconox/tap water solution, solvent rinsates, and soil residues, will be screened with a PID at the completion of activities. If

no volatiles are detected above background, the decontamination waste will be disposed by allowing it to recharge into the soils on an upland portion of the site. Decontamination waste containing detectable concentrations of volatile organics will be containerized and staged for characterization and disposal.

5.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN

5.1 Project Organization

Malcolm Pirnie, Inc. is providing engineering services to the Village of Haverstraw. Mr. Joe Corless, P.E. is the Village Engineer in charge of providing technical monitoring on behalf of the Village. Mr. Mike Ryan of NYSDEC is providing technical oversight under the Environmental Restoration (Brownfields) Program. Personnel resumes are provided in Attachment 1.

For Malcolm Pirnie, Inc., William Dee, President, is the Senior Company Officer and Ken Goldstein, Vice President in charge of Industrial and Federal Hazardous Waste Programs, is the Officer providing technical review. The Project Manager for Malcolm Pirnie, Inc. is Anthony C. Catalano, P.E. DEE, Associate, who specializes in environmental restoration projects.

Malcolm Pirnie, Inc. has a matrix organization structure. Project personnel are drawn from throughout the company irrespective of group or locational assignment. The project personnel are selected on the basis of appropriate skills, experience and availability. For purposes of this project, tasks and subtasks will be assigned to Task Managers. Personnel working on specific tasks will report on a daily basis to their respective Task Managers. Task Managers, in turn, will work under the daily direction of the Project Manager. The project personnel responsibilities are summarized below.

Senior Company Officer: William Dee, P.E., President, is the Senior Company Officer at the top of the QA/QC chain of command. He does not become directly involved with implementation of the project plan, and intercedes only if quality of the project is threatened via reports from QA/QC personnel.

Project Officer: The Project Officer, Jeff Bennett, P.E., D.E.E., is the representative of Malcolm Pirnie with contract authority. The Project Officer is responsible for the commitment of the resources required to fulfill Malcolm Pirnie's obligation to the Village.

Technical Review Director: The Technical Review Director, Ken Goldstein, P.E., provides guidance on technical matters and reviews all technical documents relating to the project. The Technical Review Director may delegate technical guidance to specially trained individuals.

Project Manager: The Project Manager, Anthony C. Catalano, P.E. is accountable to the Project Officer throughout the duration of the project, and utilize the Technical Review Director for any technical assistance. The Project Manager may delegate authority to expedite and facilitate the implementation of the project plan. The Project Manager is responsible for:

- Review of engineering and interim reports,
- Coordination with the Village and NYSDEC,
- Budget control,
- Project coordination to implement Work Plan,
- Allocation of resources and staffing to implement the QA/QC program.

Task Managers: Various Task Managers will provide technical support to the Project Manager for implementation of the Work Plan relative to their respective task and have the following responsibilities:

- Preparing task reports,
- Task scheduling,
- Task budget management,
- Task Work Plan coordination, and
- Data evaluation.

Analytical data generated for the project will be evaluated according to the Division of Environmental Remediation (DER) Data Usability Summary Report (DUSR) guidelines.

5.2 Sample Designation and Analytical Summary

5.2.1 Sample Labels

Sample labels are required to include the following information:

- Site Name
- Sample Number
- Sample Matrix
- Parameters to be Analyzed

- Date of Collection
- Time of Collection
- Type of Preservation
- Sampler(s) Name

5.2.2 Sample Numbering

Each sample shall be identified by a unique sample number. The sample identification scheme to be used is as follows:

The surface water sample labeled SW-01-MMDDYYYY

SW:	The sample was collected from surface water
01:	The surface water sampling location ID
MMDDYYYY:	Date of sampling

The sediment sample labeled SD-01/0-0.5

SD:	A sediment sample
01:	The individual boring location ID at the site
0-0.5:	The depth interval (in feet) from which the sample was collected

The hand auger sample labeled HA-01/1-1.5

HA:	A hand auger soil sample
01:	The individual boring location ID at the site
1-1.5:	The depth interval (in feet) from which the sample was collected

Rinsate blanks will be labeled as follows:

RB-HA-MMDDYYYY

RB:	Rinsate blank
DP:	Designates blank collected during soil sampling
DDDDDD:	Date of sampling

or

RB - SD- MMDDYYYY

RB:	Rinsate blank
SD:	Designates blank collected during sediment sampling
DDDDDD:	Date of sampling

Trip blanks will be labeled as follows:

TB – MMDDYYYY

TB:	Trip blank
MMDDYYYY:	Date of associated sample collection

If conditions require resampling of a sample location (i.e., refusal encountered), the sample shall be labeled as described above with a "RS" placed at the end of the sample number. Field duplicates will be sent to the laboratory as "blind" duplicates. They will be assigned a number in sequential order, with a fictitious sample location and time that is consistent with the sampling scheme described above.

5.2.3 Analytical Summary

Tables 5-1 and 5-2 list the number of samples to be collected from the Beaver Brook Swamp site by sample media and the laboratory analyses to be requested for each sample.

Table 5-1: Environmental Sample Summary

Media and Generic Designation	No. of Samples	Requested Analyses	Data Reporting Level
Soil HA-01/1-1.5	5 samples 1 duplicate	• TCL Volatiles • TCL Semivolatiles • TCL Pest/PCBs • TAL Metals • Cyanide	NYSDEC ASP Category B
Surface Water SW-01-(Date)	6 samples	• TCL Volatiles • TAL Metals • Cyanide • Hardness	NYSDEC ASP Category B
Sediment SD-01-(Date)	3 samples 1 duplicate	• TCL Volatiles • TCL Semivolatiles • TCL Pest/PCBs • TAL Metals • Cyanide	NYSDEC ASP Category B
Aqueous QA/QC RB-HA-(Date)	1 rinsate blank	• TCL Volatiles • TCL Semivolatiles • TCL Pest/PCBs • TAL Metals • Cyanide	NYSDEC ASP Category B
Aqueous QA/QC TB-(Date)	3 trip blanks	• TCL Volatiles	NYSDEC ASP Category B

Table 5-2: Physical Properties Sample Summary

Media and Generic Designation	No. of Samples	Requested Analyses	Data Reporting Level
Soil HA-01/1-1.5	2 samples	• Grain Size • Total Organic Carbon • Cation Exchange Capacity	Not applicable

5.3 Project Documentation

5.3.1 Field Documentation

A bound field logbook will be maintained to record daily activities. Entries will be made in indelible ink and the pages will be consecutively numbered. Incorrect entries will be corrected by a single stroke through the error and will be verified with the recorder's initials and date of correction. Entries to the log book will include:

- Date
- Start and finish times
- Summary of work performed (included samples collected)
- Names of personnel present
- Names of visitors
- Weather
- Calibration of equipment
- Observations and remarks

The following information will be recorded in the field log book at the time of sampling:

- Sample designation
- Name of sampler
- Method of collection
- Time and date of sampling
- Type of sample
- Analyses
- Field measurements and calibration (if applicable)
- Soil type and/or observed conditions which may impact the chemistry of the sample

5.3.2 Photodocumentation

Progress photographs will be taken during the investigation. These photographs may include the sample itself, collection activities, and surrounding areas. Photographs taken to document sampling points should include two or more reference points to facilitate relocating the sample location at a later date.

5.4 Sample Custody

Sample custody during the field investigations will be completed in two phases. The first phase encompasses sample collection, pre-laboratory treatment procedures (preservation), packaging, and field custody procedures. The second custody phase

involves sample shipment, method of shipment, air bill numbers, and date and time documentation. Both phases of sample custody will be conducted to provide that:

- All samples are uniquely identified;
- The correct samples are tested and traceable to their source;
- Vital sample characteristics are preserved;
- Samples are protected from loss or damage; and
- A record of sample custody and integrity is established and maintained through the entire custody process.

5.4.1 Chain-of-Custody Record

The chain-of-custody provides an accurate written record that can be used to trace the possession and handling of the sample from the time of collection to analysis. The chain-of-custody form will be completed for each sample at the time of collection and will be maintained while shipping the sample to the laboratory. The following information must be entered on the chain of custody form:

- Project number - enter the alpha-numeric designation that uniquely identifies the project site (e.g., 3142003);
- Project name - Damiani and Empire State Chair Factory Sites;
- Signature of sampler(s);
- Sample number - enter the sample identification number for each sample in the shipment;
- Date - enter an eight-digit number indicating the month, day and year of sample collection (MM-DD-YYYY, e.g., 03-01-2000);
- Time - enter a four digit number indicating the time of collection based on the 24-hour clock (e.g., 1300);
- Sample matrix - enter the matrix (e.g., soil or aqueous) of the sample;
- Parameters for analysis - enter the analyses to be performed for each sample;
- Remarks - enter any appropriate remarks.

5.4.2 Sample Shipping Procedures

Custody of samples must be maintained through the shipment of samples to the selected laboratory. Samples will be in the custody of Malcolm Pirnie until relinquished directly to the laboratory by sampling personnel or shipped via the following procedures:

- Use coolers making certain the cooler drain (where applicable) is taped shut.
- Place about 3 inches of inert cushioning material (i.e., bubble wrap) in the bottom of the cooler.
- Place and seal the sample bottles in clear "zip lock" bags keeping the labels visible, and pack the bottles in the cooler. To minimize the possibility of breaking bottles, they will be separated by placing sealed bags of ice on the bottom, top and sides of the samples. Don't use "blue ice" packs - obtain cube ice for preservation. The remaining spaces will be filled with packing material. Ice will be double bagged with the inner zip lock seam at the bottom of the outer zip lock bag.
- When shipping the samples by common carrier (e.g., Airborne), sign the chain-of-custody under "relinquished by," enter the carrier name and airbill tracking number under "received by," and retain a copy for field records. Place the chain-of-custody record in a waterproof plastic "ziplock" bag and affix it with tape to the inside lid of the cooler.
- Apply signed custody seals to the front and back of the cooler so the seals bridge the cooler and lid.
- Secure the lid by completely wrapping with strapping tape at either end of the cooler. Do not cover any labels.
- Attached completed shipping label to top of the cooler. The shipping label shall have a return address.

Ship the cooler by overnight express to the project laboratory:

Katahdin Analytical Services
340 County Road No. 5
Westbrook, ME 04098
Attn: Sample Manager

6.0 HEALTH AND SAFETY PLAN

A Site-specific Safety and Health Plan was developed for the field investigations proposed for the Damiani and Empire State Chair Factory Sites and is provided as Appendix B to this Work Plan.

7.0 SI REPORT FORMAT

After receipt and evaluation of analytical data generated by the field investigations, an SI Report will be prepared and submitted to the Village and NYSDEC. The SI Report format will follow the format provided in Appendix I of the 1996 Clean Water/Clean Air Bond Act Procedures Handbook for Environmental Restoration Projects (NYSDEC 1998). A proposed Table of Contents for the Damiani and Empire State Chair Factory Sites SI Report and Project Schedule is provided in Appendix C.

REFERENCES

New York State Department of Enviromental Conservation. 1998. 1996 Clean Water/Clean Air Bond Act Procedures Handbook for Environmental Restoration Projects – Title 5. http://www.dec.state.ny.us/website/bondact/bniprocd.html#5-0.

APPENDICES

Appendix A

VILLAGE OF HAVERSTRAW

Jeffrey R. Bennett

Mr. Bennett's career encompasses virtually all aspects of consulting engineering. Projects he has managed include study, design and construction phase assignments for civil engineering and environmental related projects. In addition, his organizational responsibilities have ranged from operating regional offices to directing corporate level programs with two of the nation's largest environmental consulting firms.

DETAILED EXPERIENCE

- **Town of Harrison: Brownfields Remediation of Construction and Demolition Debris Landfill / NY.** Project Officer for an innovative environmental cleanup, which transformed an abandoned, contaminated, 100-acre site into prime real estate ready for residential development. By using on-site processing and beneficial reuse of construction and demolition (C&D) debris and a state-of-the-art groundwater cleanup approach, Malcolm Pirnie accelerated the town's troubled property transfer effort and saved millions of dollars. In 2002 the project received the New York Association of Consulting Engineers' Diamond Award and the American Consulting Engineers Council's National Recognition Award.
- **City of New Rochelle: Weyman Avenue Revitalization / NY.** Project Officer for the state's first 'brownfield' remediation project prior to New York State's 'Brownfield' Grant Program. The project won a Technical Excellence Award from the NYACE and is now the site of a Home Depot and a Costco shopping club.
- **Village of Irvington: Waterfront Park Brownfields Project / NY.** Project Officer for a project assisting the Village of Irvington, the Scenic Hudson Land Trust, and the New York State DEC with a brownfields remediation and construction of a 12-acre waterfront park along the Hudson River. This was the first brownfields project to be awarded an investigation grant under the 1996 New York State Clean Water/Clean Air Bond Act, and one of only five brownfields projects statewide to receive a remediation grant. In 2002 the project received the New York Association of Consulting Engineers' Gold Award.
- **Naval Facilities Engineering Command, Northern Division: Installation Specific Hazardous Waste Planning - New York, New Jersey, Pennsylvania, and New England.** Project Officer for this $5M/5-year program, which includes hazardous waste management plans, solid waste management plans, oil spill prevention, control and countermeasure plans, asbestos and lead paint investigations, and UST removal at naval facilities throughout the Northeast.

PROJECT ROLE: PROJECT OFFICER

Title/Firm

Vice President
Malcolm Pirnie, Inc.

Years of Experience

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Education

Executive Training Program on Negotiation Harvard University 1992
Executive Training A/E Contracting United States Army Corps of Engineers 1996
BS Civil Engineering Tufts University 1970
MBA Business Management University of New Hampshire 1976, The Whittemore School

Registrations and Certifications

Professional Engineer, 1975
Diplomate, American Academy of Environmental Engineers

Health and Safety Training

Hazardous Waste Operations Eight (8) hour refresher
Construction Safety Awareness
Confined Space Awareness
Hazardous Waste Operations Site Supervisor

Special Recognition

1993: Design Excellence Award; National Academy for the Arts
2002: Diamond Award; New York Association of Consulting Engineers
2002: Gold Award; New York Association of Consulting Engineers
2002: National Recognition Award; American Consulting Engineers Council

Societies

American Academy of Environmental Engineers, Member of the Membership Committee
American Consulting Engineers Council

- **U.S. Army Corps of Engineers, Kansas City District: Hazardous Waste Management for Installation Restoration Program, Plattsburgh Air Force Base / Plattsburgh NY.** Project Officer for environmental and hazardous waste activities being implemented as part of the Installation Restoration Program activities. The work includes PA, SI, RI, and RDs for over 20 sites at the active base. Design activities include the closure of a landfill and a removal action for soils contaminated by a solvent spill.
- **U.S. Army Corps of Engineers, Kansas City District: Remediation of the Marathon Battery Superfund Site / Cold Spring NY.** Project Officer for the mitigation, design, and assessment of a 15-acre tidal freshwater marsh contaminated with cadmium. The final marsh design integrated dredging to remove highly contaminated sediments, clay encapsulation, soil placement and replanting to restore wetland functional benefits, enhancement of wildlife value, and increase of human use potential. This was also the first Superfund site in the nation to incorporate large-scale archaeological investigations. The project received national design excellence awards for the District, U.S. EPA Region 2, and Malcolm Pirnie from the U.S. Corps, the Secretary of Defense, the National Endowment for the Arts, and several other civilian professional organizations.
- **U.S. Army Corps of Engineers, Kansas City District: IQC for EPA Support.** Project Officer for this $15 million, three-year IQC to support EPA Region 2 hazardous waste site remediation program in NY, NJ, and Puerto Rico. Work ranged from preliminary studies through remedial design at Superfund sites throughout the region. Selection and evaluation of remediation alternatives was a major focus of these assignments.
- **U.S. Army Corps of Engineers, Omaha District: Indefinite Delivery Contract for Environmental Services.** Project Officer responsible for the overall direction of hazardous waste projects, including remedial investigations and baseline risk assessments at the Glasgow Air Force Base (MT), Minot AFB (ND), and Scott AFB (IL); preliminary assessment / site investigation for past uses and disposal of radioactive materials at the Davis-Monthan AFB (AZ); and industrial pretreatment and inflow infiltration studies at Pope and Seymour Johnson AFBs (NC).
- **U.S. Army Corps of Engineers, Kansas City District: Maywood FUSRAP Site Remediation / Maywood NJ.** Project Officer for the remedial investigation/design portion of this high-profile radioactive FUSRAP site as a subconsultant to another firm. Work includes

preliminary evaluation of cleanup options and development of optimal sequencing for design / construction phases.

- **U.S. Army: Groundwater Remediation, Rocky Mountain Arsenal / Denver CO.** Performed assessment and design of groundwater treatment facilities for off-post contamination resulting from pesticide and nerve gas manufacture.
- **Port Authority of New York and New Jersey: Dredge Spoil Containment Facility / New York/New Jersey Harbor.** Assisted with the preliminary investigation and feasibility of building a containment facility in the New York Harbor area. The study evaluated the various environmental, public health and welfare, socially acceptable, and legal / regulatory considerations associated with such a project and provided a decision framework and time frame for implementation against required studies and permitting approvals.
- **Naval Surface Warfare Center: Confirmation and Major Remedial Investigation/Feasibility Study / White Oak MD.** Project Officer for work on site with extensive soil/groundwater contamination with organics, metals, and explosive material residues; included wastewater treatment plant evaluations, air permitting, UST investigations, SPCC plans, spill contingency plans, RCRA Part B permits and closure plans, and RCRA facility assessments.

PUBLICATIONS

Bennett, J.R., Boutin, W.H., York, T. ., **"Remediating with Innovation and Sensitivity,"** *The Military Engineer*, January-February/March-April, 1993.

Bennett, J.R., Fellows, C.H., Jackson, L.M., **"Army Base Cleanup Opens Hazardous Waste Market,"** *American Consulting Engineer*, Winter 1992.

Bennett, J.R., Rible, T.**"Public Works Officials Seek Extra Service,"** *American City and County*, July 1991.

Bennett, J.R., Vetter, J.Grossman, J.W., **"Superfund Archaeology Yields New Insight into the Civil War Era,"** presented at the Hazardous Material Control '91 Conference, Washington DC, 1991.

Bennett, J.R., McCabe, W.McCollum, R.W., **"The Importance of Pre-Design Studies in Superfund Remediation,"** presented at the Conference on Design and Construction Issues at Hazardous Waste Sites, Dallas TX, 1991.

Bennett, J.R., Ebron, A.**"An Aggressive Approach to Solid Waste Management Education,"** *Public Works Magazine*, 1990.

Bennett, J.R., Braden, M.**"First Application of Value Engineering to Superfund Cleanup Saves Millions,"** *Water, Environment and Technology*, 1990.

Bennett, J.R., Simmons, T.M., **"Remediating Complex Hazardous Waste Sites,"** presented at the New York/New Jersey Environmental Exposition, 1990.

Bennett, J.R., Wolfe, P.L., **"Future Solid Waste Management Issues,"** presented at the National Waste Processing Conference of the American Society of Mechanical Engineers, Philadelphia PA, 1988.

VILLAGE OF HAVERSTRAW

Anthony C. Catalano

Mr. Catalano specializes in planning, permitting, design, and construction management for all types of municipal facilities and site remediation and redevelopment projects. He has managed a number of projects involving brownfields, landfills, composting facilities, transfer stations, material recycling facilities, and general public works facilities. His design experience includes infrastructure components such as storm water conveyance systems, gas collection systems, and site grading. He has worked closely with a large number of municipal officials and their engineering staffs during the course of his career. Mr. Catalano also has extensive experience in negotiating with regulatory agencies on permitting, design, and construction-related issues.

DETAILED EXPERIENCE

- **Town of Harrison: Beaver Swamp Brook / NY.** As Project Manager, led efforts for the site investigations required for Beaver Swamp Brook and the future redevelopment plans to convert the brook area into a community nature/ educational center, including access roads, parking, walking trails, and wetland preservation. Developed work plans for site assessment including groundwater monitoring, soil, sediment, and surface water sampling and analyses. Addressed the SEQR issues and negotiated with the NYSDEC regarding the most technically sensible and cost-effective approach for remediation. Also prepared planning documents necessary to se-cure a $500,000 in grants from the USDA/NRCS for the development of a nature park and wetland restoration. Recent negotiations have helped position the Town to secure over $4 million in funding for the remediation work.
- **Town of Harrison: Environmental Assessment/Remediation of Dump Site / NY.** As Project Manager, prepared a cost study report for the remedial options for the 5.5-acre dumpsite. Re-port preparation included speaking with contractors regarding excavation, hauling, and disposal costs, and speaking with representatives of the New York State Department of Environmental Conservation (NYSDEC) regarding the proposed remedial options. Developed the approach for assessing the environmental conditions at the site. Also developed plans and specifications and engineer's cost estimate for the reclamation of the landfill and served as project manager for field construction activities. Responsibilities included schedule coordination with contractor and client, review of contractor's submittals and request for payments, negotiation of change orders, negotiation with the NYSDEC, and management of the overall project budget. Approach to this project resulted in cost savings in excess of $5 million

PROJECT ROLE: PROJECT MANAGER

Title/Firm

Associate
Malcolm Pirnie, Inc.

Years of Experience

15

Education

BS Civil Engineering Manhattan College 1988
ME Civil/Environmental Engineering Manhattan College 1992

Registrations and Certifications

Professional Engineer, 2002
Certified Troxler Nuclear Moisture-Density Gauge Operator, 2001

Health and Safety Training

Medical
Hazardous Waste Operations Site Supervisor

Special Recognition

Diamond Award for the Town of Harrison NY Environmental Restoration Project, New York Association of Consulting Engineers, 2001

Societies

American Society of Civil Engineers (Member)
Solid Waste Association of North America (Member)

Employment History

Malcolm Pirnie, Inc. 1988 to present
The Briar Contracting Corporation 1987 to 1987

for the Town. A No Further Action Notice was secured for the site from the NYSDEC paving the way for development of luxury homes.

- **Watervliet Arsenal/ Albany NY.** Managing efforts for the development of a soil remediation design work plan to remediate contaminated soils from this cannon production site. Responsibilities include managing design staff, negotiating with NYDEC, NYSDOH, and USEPA to gain approvals.
- **Soundview Park/ Bronx NY.** As Project Manager, managing efforts for site development work including roadway design and reconstruction, storm water management, water services, electrical and phase service and structural foundation design. Coordinating with specialty groups and client to prepare construction/ bid documents for contractor procurement.
- **New York City Department of Sanitation: Fresh Kills Landfill Closure / Staten Island NY.** For the closure construction of the world's largest landfill, led efforts for the preparation of plans and specifications and cost estimates for the development of a passive gas venting system and for the closure design documents for the country's largest landfill. Also, designed and prepared construction drawings for a temporary drainage system to control runoff during landfill operations. Responsible for tracking the project budget and requesting additional funds, as required.
- **Town of New Canaan: DPW Highway Garage / CT.** As Project Manager, led efforts for the planning, design, and construction of a $5 million highway garage facility and access road modifications. Work included coordinating with support staff specializing in architectural, structural, and electrical design, and CADD operators. Prepared construction documents and provided assistance to the Town to procure a contractor. Also directed field personnel during construction efforts and met with Contractor to negotiate change orders.
- **Pima County Solid Waste Management Authority: El Camino del Cerro Landfill Gas Remediation / Tucson AZ.** Designed a gas collection and flare system to be installed as part of the landfill closure construction. Responsibilities included using gas generation data from previous site investigations to size and lay out gas piping. Also, computed pressure loss in the pipe network to establish design parameters for the flare system, including blower capacity and operating temperatures. Designed the condensate collection system for condensate generated in the gas collection piping network. Prepared request for proposals to solicit interest from vendors to install a temporary flare system on an emergency type basis.

- **Town of Mamaroneck: Engineering Consultant / NY.** Served as consultant to the town's planning board to address SEQR issues including site development, traffic, drainage control, and storm water management.
- **Borough of Woodbine: Woodbine Landfill Closure / NJ.** As Project Manager, developed a design/build procurement document and negotiated with the NJDEP for the closure construction of a 40-acre landfill site using alternative materials for closure (i.e., sludge-derived project, thermally treated soils, crusted glass etc.), which ultimately resulted in a no-cost closure for the client.
- **Warren County/ New Jersey.** Served as the project manager for the construction of two 5-acre landfill cells for disposal of solid waste. Negotiated design variances with NJDEP and directed field crew during the twelve-month construction project.
- **Middlesex County Utilities Authority: Expansion of Edgeboro Landfill / East Brunswick NJ.** Prepared contract plans and specifications, engineer's cost estimate, and served as the resident engineer for the quality assurance/ quality control of the construction of a 55-acre landfill expansion. Responsibilities included coordinating with contractors and their subcontractors, providing quality assurance/ quality control for the installation of liner materials (i.e., geomembrane, geotextile, and soil materials), and conducting nuclear moisture density tests for soils used in the liner installation.
- **Town of Southampton: North Sea Landfill Expansion / NY.** Prepared bid documents (i.e., plans and specifications) and engineer's cost estimate, and coordinated with the drafting department for the bi-level recycling center and North Sea Landfill Cell No. 2 closure construction. Designed and prepared contract plans and specifications for an active landfill gas collection system, including pipe network, condensate tanks, and flare system. Assisted contractors with questions regarding bid documents prior to submittal of bids. Analyzed the bids submitted by contractors in order to provide the town with a recommendation for award.

PUBLICATIONS

Catalano, A.C., **"Project Homerun" State and Federal Grants, Plus a Clear Vision Lead to the Redevelopment of a Former Dump Site"** presented at the Federation of New York Solid Waste Associations Conference, Bolton Landing, New York, May 7, 2003.

Kakarla, P. ., Catalano, A.C., Wasp, R. ., **"Accelerated BTEX/MtBE Destruction Achieved through Chemical Oxidation,"** *Technology News and Trends*, a Newsletter of the United States Environmental Protection Agency, Issue No. 3, pp. 4-5, November 2002.

Catalano, A.C., Druback, G.W., Carlton, J. ., Zelley, R. ., **"Don't Let It Needle You -- Quality Control of GCL Liner Systems.... Construction of Cells 3A and 3B of the Warren County Landfill,"** *Proceedings*, Session on New Developments with Geosynthetics, Landfill Symposium, Solid Waste Association of North America, San Diego CA, June 18, 2001.

Catalano, A.C., **"Thinking out of the Box: The Rewards of a Successful C&D Landfill Reclamation and Beneficial Re-Use Project,"** *Proceedings*, International Conference of the Solid Waste Association of North America, Reno NV, October 21, 1999.

VILLAGE OF HAVERSTRAW

Kenneth J. Goldstein

Mr. Goldstein is experienced in site characterization, environmental due diligence, contaminant hydrogeology and aquifer restoration. For various industrial and private clients he has directed Phase I and Phase II Environmental Site Assessments (ESAs). These were performed as part of property transfers and or identification of environmental liabilities.

DETAILED EXPERIENCE

- **Landfill Hydrogeologic/Remedial Investigations / NY.** Directed hydrogeologic/remedial investigations at several municipal and industrial solid waste landfills to evaluate potential impacts to human and the environment and to evaluate feasible remedial alternatives. Investigations included the assessment of leachate impacts to groundwater and or surface water and to determine impacts to downgradient receptors. Physical/structural and non-structural controls for leachate migration were evaluated and designed.
- **Phase I and Phase II Environmental Site Assessments.** Directed numerous Phase I and Phase II ESAs at various industrial and commercial facilities in the northeastern United States to evaluate environmental liabilities prior to property transfers and financing.
- **Pole-Lite Industries, Inc.: Phased Remedial Investigation of Soils and Unconsolidated Aquifer/ Champlain NY.** Directed phased remedial investigation of soils and unconsolidated aquifer contaminated with volatile organics and semi-volatile organic compounds. Work involved soil gas surveys, soil sampling and analyses, groundwater sampling and analysis, and implementation of remedial actions through the removal and treatment of contaminated soil.
- **Schenectady County: Computer Modeling / NY.** Responsible for the computer modeling of wellhead protection areas for five municipal well fields. This entailed the development of a regional groundwater flow model for the Schenectady Aquifer and delineating wellhead protection areas for each of the individual well fields using particle tracking, capture zone analysis. Calibration of the model included an assessment of the amount of induced infiltration of the Mohawk River to the municipal supply wells.
- **St. Lawrence Cement Company, L.L.C.: Site Remediation.** Directed the investigation and remediation of an industrial site contaminated with petroleum hydrocarbons (PAHs) and PCBs. Remediation entailed the characterization of contaminated soil using immunoassay testing and remediation by excavation and off-site disposal.

QUALITY ASSURANCE MANAGER

Title/Firm

Vice President
Malcolm Pirnie, Inc.

Years of Experience

22

Education

BA Environmental-Geologic Sciences and Physical Geography State University of New York at Binghamton 1980
MA Physical and Environmental Systems Analysis; Geomorphology, Hydrologic and Hydrogeologic Systems State University of New York at Binghamton 1982

Registrations and Certifications

Certified Ground Water Professional, 1990

Heaith and Safety Training

Hazardous Waste Operations Site Supervisor

Societies

American Water Works Association (Member)
Association of Ground Water Scientists and Engineers (Member)
National Groundwater Association (Member)
Society of American Military Engineers - New Jersey Post (Member)

Employment History

Malcolm Pirnie, Inc. 1984 to present
Oneida County Planning Department and Environmental Management Council 1982 to 1984
Broome County Environmental Management Council 1981 to 1982

- **Suffolk County Department of Health Services: Salt Water Intrusion Assessment / Long Island NY.** Performed assessment of salt-water intrusion and upcoming for insular areas of Suffolk County. On the basis of the results of salt-water intrusion analysis, developed safe yields for municipal supply wells to mitigate/ preclude further migration of salt-water wedge.
- **U.S. Army Corps of Engineers, Baltimore District: RCRA Facility Investigations and Assessments at Watervliet Arsenal / NY.** Project manager for RCRA facility investigations at two solid waste management units (SWMUs) and RCRA facility assessments at 21 SWMUs / areas of concern (AOCs) at the main manufacturing area. Responsible for RCRA hazardous waste minimization plan and RCRA closure of a treatment, storage, and disposal facility (TSDF). As Project Manager, developed a corrective measure study (CMS) and interim CMS for remediation of soil and groundwater contaminated with volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbon (TPH), light nonaqueous-phase liquids (LNAPLs), and heavy metals.
- **U.S. Army Corps of Engineers, Baltimore District: Remedial Design at Watervliet Arsenal / NY.** Directed the design of a passive reactive barrier wall for the removal of chlorinated VOCs from groundwater. Design entailed the performance of groundwater modeling for the optimization of location and orientation of reactive walls.
- **U.S. Army Corps of Engineers, Baltimore District: Remedial Studies at Watervliet Arsenal / NY.** Project Manager for bench-scale studies and pilot testing for remediation of chlorinated organic compounds using passive barrier technologies. Funnel and Gate technology, a technology less than five years old, which uses zero-valent iron filings as the gate material, was evaluated. This technology has been successfully applied at industrial sites and at Department of Defense sites. Results of bench-scale studies led to the design and installation of a continuous barrier wall to passively treat VOCs in groundwater.
- **U.S. Army Corps of Engineers, Kansas City District: Remedial Investigation at Marathon Battery Superfund Site / Cold Spring NY.** Reviewed toxicity characteristic leaching procedure (TCLP) data and chemical analytical results for cadmium samples to determine volume and areas requiring excavation.
- **U.S. Army Corps of Engineers, Kansas City District: Remedial Investigation at Plattsburgh Air Force Base / NY.** Involved in work plan preparation and implementation of preliminary assessments,

site investigations (3) and remedial investigations (4). Task Leader responsible for preparation of remedial investigation report for four sites and Senior Hydrogeologist for site investigation reports for three sites at the Base. Developed decision documents (2) for site de-listing and work plan for an interim remedial measure (IRM).

- **U.S. Army Corps of Engineers, Kansas City District: Installation Restoration Program at Plattsburgh Air Force Base / NY.** Managed remedial investigations / feasibility studies at five areas of concern (AOCs) and conducted a basewide hydrogeology program for the Base's Installation Restoration Program. Also managed RCRA preliminary assessments and site investigations (PA/SIs) at 25 solid waste management units (SWMUs) and RCRA underground storage tank (UST) closures at other AOCs on the Base. Field and laboratory data collected as part of this work were managed using the Air Force's Installation Restoration Program Information Management System (IRPIMS) database.
- **U.S. Army Corps of Engineers, Kansas City District: Site Assessments, Plattsburgh Air Force Base / NY.** Directed 35 preliminary assessments at various industrial areas at the Base. Work included record searches, site visits, regulatory permit reviews, and reporting.
- **U.S. Army Corps of Engineers, Kansas City District: Environmental Restoration at Superfund Site, FUSRAP Program / Maywood NJ.** Directed the project's groundwater remedial investigation, focusing on the detection, delineation, and transport of radiological isotopes and rare earth elements in unconsolidated and bedrock aquifers in Maywood and Rochelle Park. Delineated the extent of uranium, thorium, and radium in the bedrock aquifer and evaluated discharge to surface water bodies and municipal supply needs in the study area.
- **U.S. Army Corps of Engineers, New York District: Hydrogeologic Assessment of Dredge Disposal Sites / NJ.** Conducted hydrogeologic and geochemical assessment at several proposed dredge spoil disposal sites in New Jersey.
- **White Mop Wringer Company: RCRA Facility Investigation and Corrective Measure Implementation / Fultonville NY.** Directed RCRA facility investigation and corrective measure implementation for closure of hazardous waste storage lagoon.

VILLAGE OF HAVERSTRAW

Richard J. Califano

Dr. Califano manages the firm's Toxicology and Risk Assessment Group. In this capacity, he conducts or directs projects involving risk assessment or risk-based solutions for public and private sector clients across the country. His experience encompasses all aspects of federal and state Superfund and RCRA corrective action processes, as well as state voluntary cleanup, petroleum spill, and Brownfields processes. He routinely uses this experience in establishing risk-based remedial objectives and numerical cleanup goals.

DETAILED EXPERIENCE

- **Long Island Lighting Company: Litigation Support for Former Manufactured Gas Plant / NY.** Authored baseline, during-remediation, and post-remediation assessments of risk associated with subsurface soil and groundwater contamination with petroleum hydrocarbons and volatile organic compounds associated with a former manufactured gas plant. The assessments, which evaluated direct contact with surface and subsurface soils, nonpotable use of groundwater, and inhalation of vapors and respirable dust potentially released from the soil, were conducted as litigation support in a pending environmental damages suit by the owner of an adjacent commercial property.
- **Union County Utilities Authority: Post-operational Study of Resource Recovery Facility / Rahway NJ.** Directed the eight-year post-operational study of environmental conditions in the vicinity of the County's resource recovery facility. This involved the collection and analysis of soil, produce, surface water and sediment samples for dioxins, PCBs and selected metals and statistical evaluation of the data in relation to comparable data collected during previous pre-operational and post-operational studies. The eight-year data was found to be indistinguishable from earlier data. The study, which is a requirement of the facility's operating permit, was conducted in consultation with the NJDEP case manager. Previously, as part of the permitting process for the proposed facility, conducted a predictive multi-pathway health risk assessment concerned with potential stack emissions and a risk evaluation concerned with the possible accidental release of anhydrous ammonia to control NOx emissions. The later evaluation was conducted in the context of the NJDEP's Toxic Catastrophe Prevention Act requirements.
- **Reichhold Chemicals, Inc.: Remediation of the Newsom Brothers Superfund Site / Columbia MS.** Provided risk assessment support including a baseline risk assessment concerned with current and likely future uses of the overall site and a risk assessment for the

PROJECT ROLE: TASK MANAGER - RISK ASSESSMENTS

Title/Firm

Associate
Malcolm Pirnie, Inc.

Years of Experience

29

Education

BS Biology Manhattan College 1973
MS Biology New York University 1979
PhD Biology/Environmental Health Science New York University 1981

Health and Safety Training

Hazardous Waste Operations Eight (8) hour refresher
Construction Safety Awareness
Confined Space Awareness
Hazardous Materials Transportation Training

Societies

Society for Risk Analysis
Society of Toxicology, Mid-Atlantic Regional Chapter
SRA, Northeast Chapter

Employment History

Malcolm Pirnie, Inc. 1986 to present
NUS Corporation 1984 to 1986
New Jersey Department of Environmental Protection, Division of Water Resources 1981 to 1984
New York University Medical Center Institute of Environmental Studies 1975 to 1981
Lawler, Matusky & Skelly Engineers 1973 to 1975

North Pond area where the proximity of residential homes was of concern.

- **St. Lawrence Cement Company, Inc.: Risk Analysis Support to Environmental Permitting of GBFS Grinding Facility / Camden NJ.** Providing on-going consultation in support of the environmental permitting of this new facility and in response to concerns raised by the regulatory agency, the host community, and technical representatives for the community. Issues have included the potential for health risks associated with levels of naturally-occurring radioactivity in the slag, emissions of respirable dust, emissions of metals and other inorganic materials associated with total and respirable dust, and emissions of diesel exhaust and possibly latex rubber associated with truck traffic. Social justice has been an overriding concern throughout the permitting process.
- **EnviroSource Technical Services: Risk Assessment Services / Horsham PA.** Provided risk assessment services to support the operation of the client's RCRA-permitted hazardous waste disposal facilities in Ohio and Idaho. To date, these services have included an assessment to demonstrate liquid runoff / seepage from outside the cell detected under the liner system of the active cell at the Ohio facility posed no threat to human health; performance of a baseline risk assessment under RCRA Corrective Action for a former sanitary landfill at the Ohio facility; development of an approach for deriving alternate concentration limits (ACLs) for groundwater for inclusion in the RCRA Part B Permit for the Ohio facility; and preparation of an exposure information report (EIR) for landfill and surface impoundment units and exposure assessment for miscellaneous units for inclusion in the RCRA Part B Permit renewal application for the Idaho facility.
- **ICI Americas, Inc.: Risk Assessment for Former Tetraloy Facility / West Goshen Township PA.** Directing a baseline risk assessment and the derivation of site-specific, risk-based cleanup levels associated with trichloroethylene and its degradation products in soil and groundwater at this former manufacturing facility. The assessment is largely focused on the potential for vapor migration through the unsaturated soil zone and infiltration to occupied commercial and residential buildings in the vicinity. The overall project has involved extensive field investigations, facilitating connection to the municipal water supply for a number of residences and the creation of a groundwater use ordinance, groundwater flow and solute transport modeling, and bench-scale treatability studies.

PUBLICATIONS

Nemickas, H. ., Califano, R.J., **"Overcoming Exposure Modeling Uncertainty: Estimated vs Measured Concentrations of Metals in Plants,"** presented at the Annual Conference of the Society for Environmental Toxicology and Chemistry, North Atlantic Chapter, Portland ME, April 24-26, 2002.

Barone, M.F., Curto, M.E., Califano, R.J., Diosey, P.G., **"Estimating Chemical Vapor Transport from Sewer to Ambient Air to Assess Human Exposure Potential,"** *Proceedings*, 32nd Mid-Atlantic Industrial and Hazardous Waste Conference, Troy NY, June 26, 2000.

Diosey, P.G., Califano, R.J., Curto, M.E., Barone, M.F., **"Assessing Risk from Petroleum Vapor Transport from Sewers to Ambient and Indoor Air,"** *Proceedings*, Odors and VOC Emissions Conference of the Water Environment Federation, Cincinnati OH, April 16-19, 2000.

Califano, R.J., **"Risk Assessment Demonstration for RCRA Part B Permitting of BIFS,"** presented at the Chemical Industry Council of New Jersey, Spring Regulatory Conference, East Brunswick NJ, 1995.

Califano, R.J., **"Risk Assessment of Air Emissions,"** Malcolm Pirnie's Air Currents, February 1995. Not peer-reviewed.

Califano, R.J., **"Human Health and Ecological Risk Assessment Central Terminal Area JFK International Airport,"** presented to the New York State Department of Environmental Conservation, Division of Construction Management, Bureau of Spill Prevention and Response, RBCA Task Force, Albany NY, 1994.

Moy, F.H., Califano, R.J., **"Data Utilization for Superfund Health Risk Assessments,"** presented at CHESM-93 Chemometrics and Environmetrics Meeting, International Statistical Institute, Bologna, Italy, August 21-24, 1993.

Califano, R.J., Barboza, M.J., **"MSW Landfill Expansion: Air Toxics Emissions and Health Risk,"** *Proceedings* of the 84th Annual Meeting and Exposition of the Air and Waste Management Association, Vancouver, Canada, June 16-21, 1991.

Bobenhausen, C.C., Cavaluzzi, G.P., Califano, R.J., **"Internal Audits: The Key to Health & Safety at Hazardous Waste Sites,"** presented at the American Industrial Hygiene Conference and Exposition, Salt Lake City, UT, May 18-24, 1991.

Califano, R.J., **"LCMR Health Risk Study,"** presented at the 8th Annual Minnesota Solid Waste Seminar, Bloomington, MN, February 27-28, 1991.

Wilson, J.W., Califano, R.J., **"Air Toxics Project Studies Health Risks from Wastewater Treatment Plant Emissions,"** *Water Environment and Technology*, Vol. 2, No. 11, pp. 17-18, 1990.

Califano, R.J., Diosey, P.G., Wilson, J.W., Griffin, D.W., Bobenhausen, C.C., **"Contaminant Deposition Techniques for Use in Human Exposure Modeling,"** presented at the International Conference on Municipal Waste Combustion, Hollywood FL, April 11-14, 1989.

Califano, R.J., Cundari, K.L., **"Results of Leachate Studies: A Toxicological and Engineering Perspective,"** presented at a Conference on New Developments in Incineration Ash Disposal, New York NY, April 26, 1988.

Califano, R.J., O'Connor, J.M., Hernandez, J.A., **"PCB Dynamics in Hudson River Striped Bass: I. Accumulation in Early Life History Stages,"** *Aquatic Toxicology*, 2:187-204, 1982.

Califano, R.J., O'Connor, J.M., Peters, L.S., **"Uptake, Retention, and Elimination of PCB (Aroclor 1254) by Larval Striped Bass (Morone saxatilis),"** *Bulletin of Environmental Contamination and Toxicology*, 24(3):467-472, 1980.

VILLAGE OF HAVERSTRAW

Kenneth G. Coffey

Mr. Coffey has experience in construction inspection for wastewater treatment facilities, sewer and water pipelines, and state highway projects. He has served as resident inspector, chief inspector, and office engineer on projects ranging in cost from $500,000 to $151 million, the latter being the construction cost of the 154-mgd Dos Rios Wastewater Treatment Plant in San Antonio, a project on which he provided construction inspection services. His construction inspection projects also include the upgrading of treatment and pumping facilities for the South Essex Sewerage District in Massachusetts, the $62 million Albany North and South Wastewater Treatment Plants, and the $38.6 million Rensselaer County Regional Wastewater Treatment Plant and appurtenant facilities. Pipeline projects include gravity sewers ranging from 8 to 54 inches diam and to a depth of 30 feet; force mains from 4 to 30 inches diam, water lines from 6 to 36 inches diam, and pump stations ranging from 1 to 4.5 mgd in size.

DETAILED EXPERIENCE

- **City of Albany: Landfill Leachate Facilities & Landfill / NY.** As Resident Inspector: Construction of a $5.1 million, 14-acre sanitary landfill with leachate storage tanks and pumping station. This facility contains two clay and HDPE membrane liners.
- **Rensselaer County Sewer District No. 1: Sewer System Construction / NY.** Responsible for up to 15 field inspectors and 2 survey crews involved with the construction of 19 miles of reinforced concrete pipe ranging in size from 36 inches to 54 inches and construction of 23 flow regulator chambers.
- **Monroe County Department of Environmental Services: Resident Engineering / Rochester NY.** Responsible for resident engineering and oversight from June 1998 until present for the following construction projects:
  - **Frank E. VanLare WWTP Cake Outload Facility.** This $7.3M project consists of construction of a new, 6,000-sq-ft facility for storage and loading of dewatered sludge cake onto trucks. Mr. Coffey has complete responsibility for daily observation of four prime contractors. Expected completion date is summer 2004.
  - **Northwest Quadrant WWTP Dewatering Improvements.** This $5.3M project consists of a new, 5,000-sq-ft building for loading sludge cake onto trucks and installation of new sludge dewatering and pumping equipment. Responsible for daily observation of four prime contractors, one major equipment vendor, and numerous subcontractors.
  - **Frank E. VanLare WWTP Centrifuge Project.** This $7.0M project consisted of constructing new sludge dewatering facilities

PROJECT ROLE
TASK MANAGER – CONSTRUCTION OVERSIGHT

Title/Firm

Inspector
Malcolm Pirnie, Inc.

Years of Experience

37

Education

Studies in Civil Technology Hudson Valley Community College

Registrations and Certifications

Certified Troxler Nuclear Moisture-Density Gauge Operator, 2001

Health and Safety Training

Hazardous Waste Operations Eight (8) hour refresher
Construction Safety Awareness
Medical
Respiratory Protection
Hazardous Waste Operations Site Supervisor

Employment History

Malcolm Pirnie, Inc. 1972 to present
Bailey, Grout Associates 1969 to 1971
Brown Engineers 1968 to 1969
Praeger-Kavanaugh 1966 to 1968

within an existing building. Work included building modifications, installation of centrifuges and cake pumps, concrete and structural steel work, piping, pumps, pile driving, electrical, HVAC, controls and plumbing work. Responsible for the daily observation of four prime contractors, two major equipment vendors and numerous subcontractors.

- **RPS Improvements.** Sequential rebuilding of 22 large centrifugal pumps and replacement/upgrade of 1970s vintage electrical and control system. This $2.2M project was completed by two prime contractors over a 15-month period.

- New **York State Department of Transportation: Highway Construction / NY.** As Senior Inspector: Duties included embankment placement, asphalt paving and concrete pipe (sewer) placement for New York State Department of Transportation highway project.
- **City of Beverly: Brimball Avenue Landfill Closure / MA.** As Resident Representative: Supervised construction of 30-acre landfill closure including composite cap and gas collection system.
- **City of San Antonio: Dos Rios Wastewater Treatment Plant / TX.** As Construction Inspector: Inspection services for construction of the $151 million Dos Rios Wastewater Treatment Plant in San Antonio TX. This facility has an average flow of 83 mgd, peak flow of 154 mgd. The project involved multiple contracts and subcontractors.
- **Middlesex County Utilities Authority: Edgeboro Landfill / NJ.** Responsible for inspection of 15-acre landfill expansion.
- **Rensselaer County Sewer District No. 1: Gravity Sewer Installation / NY.** As Resident Inspector: Responsible for quality control monitoring and inspection for the installation of four miles of 16-inch and 20-inch reinforced concrete pipe gravity sewer. Project included installation of 4,500 feet of ductile iron pipe, 4,000 feet of 20-inch reinforced concrete pipe force main, and construction of a 10.4-mgd sewage pump station for the Village of Green Island sewerage project.
- **South Essex Sewerage District: Facility Upgrades / Salem MA.** As Chief Resident Representative: Construction of phased upgrades to the existing 40-mgd wastewater treatment facility and several pumping facilities.
- **The Costal Partnership: The County Regional Landfill & Transfer Facilities / New Bern NC.** As Resident Representative: Supervised construction of 20-acre composite landfill including leachate facility and two transfer facilities.

VILLAGE OF HAVERSTRAW

Laurence S. Fernberg

Dr. Fernberg specializes in plant and animal community analysis, with concentration in freshwater, salt marsh, and estuarine tidal and nontidal wetlands, old field, meadow, and endemic rare and endangered species. Dr. Fernberg's responsibilities include wetland delineations, biological assessments, mitigation design, and specifications to create, replace, or enhance wetland values and stream restoration design plans to create wildlife habitat. Dr. Fernberg's skill set includes the preparation and implementation of recreational exercise trails and informational, educational walks coupled with adult and adolescent educational classes and workshops in many phases of environmental horticulture, population, and community ecology and endangered and threatened habitats and species in the Northeast.

DETAILED EXPERIENCE

- **Town of Harrison: Beaver Swamp Brook Restoration / NY.** As Senior Project Scientist and Designer, led the site investigations required for Beaver Swamp Brook stream restoration, wetland enhancement, and mitigation components of a 5.5-acre brownfields dump remediation site. The work included biological assessment, wetland and stream delineations, tree inventory and survey, and soil testing. Developed detailed drawings and specifications for stream and wetland restoration that included access roads, parking, walking trails, and wetland boardwalk. The design was developed to maximize the environmental benefits of the ecosystem and to enhance the riparian habitats in an urban location.
- **City of Hackensack: Johnson Park Revitalization / NJ.** As lead scientist, performed stream and wetland delineation, biological assessment, and an endangered species survey for a tidally influenced transitional freshwater ecosystem that would be disturbed as a result of the construction of a waterfront walkway along the Hackensack River in Johnson Park. Assisted in the development of plans and specifications for bank stabilization and revetment for the reestablishment of riparian vegetation and wildlife habitat using native plant materials.
- **New York City Department of Sanitation: Fresh Kills Landfill / Staten Island NY.** Investigated native plant communities suitable as community models for revegetation of landfill. Manage and review timetables, reports, and data for preparation of contract specifications to conduct restoration of selected plant communities on highly impacted site. Evaluate contractors and plant materials suggested for use on project. Supervise on-site implementation of restoration project at previously chosen sites on the landfill.

PROJECT ROLE: TASK MANAGER - NATURE PRESERVATION ISSUES

Title/Firm

Senior Project Scientist
Malcolm Pirnie, Inc.

Years of Experience

25

Education

BA Botany Connecticut College 1978
MS Environmental Biology and Zoology Fordham University 1990
PhD Biology/Ecology Fordham University 1997

Registrations and Certifications

Professional Wetland Scientist, 2000
Certified Army Corps of Engineers Wetland Delineator, 1998

Health and Safety Training

Special Recognition

Routh Summer Research Fellowship: Fordham University 1992
Presidential Scholarship and Teaching Fellowship:Fordham University 1986-1992
Hudson River National Estuarine Research Reserve/New Sea Grant 1994-1996

Societies

American Society of Naturalists
Ecological Society of America
Phi Kappa Phi
Sigma Xi
Society for Ecological Restoration
Society of Wetland Scientists

Employment History

Malcolm Pirnie, Inc. 1998 to present
Michael Labriola, Inc. 1995 to 1997
The Nature Conservancy 1988 to 1988
Round Hill Farm 1984 to 1995
Fernberg Consulting Group 1982 to

- **Paulinskill Lake Association: Rehabilitation of Paulins Kill Lake Dam / Newton NJ.** Conducted stream evaluation, wetland delineation, and an endangered species survey for reptile and plant species as part of a dam safety permitting process. Developed stream and wetland restoration plans and specifications as a member of the interdisciplinary team that performed the dam's repair while integrating innovative bioengineering concepts to restore riparian habitats.
- **St. Lawrence Cement, Inc.: Greenport Facility Wetland Delineation, Biological Assessment and Endangered Species Habitat Study / Greenport NY.** Lead scientist and team coordinator for biological assessment, environmental documentation, global positioning system (GPS) mapping, and delineation of streams, wetlands, and potential endangered species habitat for a new cement facility construction project in Columbia County. The quarry, processing plant, and transport terminal are located on a 1600-ac site adjacent to the Hudson River. The project team scientists completed a biological assessment of the natural resources and a delineation / evaluation of all wetlands, streams, and significant habitat areas involved in the proposed development, construction, and operation of the cement plant, quarry, and mining operation. In addition, provided oversight for the completion of all GPS field work and the preparation of Computer-Aided Design and Drafting (CADD) mapping of extensive systems of Hudson River tidal and inland freshwater wetland systems and the production of the final natural resources report.
- **Confidential Client.** Coordinating manager and co-lead project scientist for organization, preparation, and management of 401 State Water Quality Certification for Ohio Environmental Protection Agency and Clean Water Act 404 Nationwide Permit 12 for Army Corps of Engineers for 25-mile waterline for municipal potable water source and raw water source for proposed 1,070-MW electric generating plant. Responsibilities included document review evaluation of permit packages for facility site and discharge line including National Pollutant Discharge Elimination System and Permit to Install/ Plan Approval Application and preparation of final document for submission to state and federal agencies.
- **Atlantic Golf Club: Endangered Species Survey / Bridgehampton NY.** Evaluated and catalogued potential habitat for determination of potential presence of Federal and State listed endangered and threatened species in freshwater and estuarine tidal wetlands.
- **The Nature Conservatory: Threatened and Endangered Species Survey / Lower Hudson Chapter.** Lead ecologist responsible for design and performance of field studies on 11 preserves in four coun-

ties totaling over 2500 acres to determine presence or potential for occurrence of rare and endangered species of plants and animals for the Natural Heritage Program. Species included Swamp pink (Helonias bullata), Purple Fringeless Orchid (Plantanthera peramoena), Bog turtle (Clemmys mulenbergi), and Jefferson Salamander (Ambystoma jeffersonianum).

- **The Nature Conservancy: Plant Species Research.** Researched rare and endangered plant populations for the Natural Heritage Program. Responsible for field surveys based upon analysis of historical literature and existing databases on plant species distribution. Species included Helonias bullata (Swamp Pink), Listera australis (Southern Twayblade), and Platanthera peramoena (Purple Fringeless Orchid).
- **U.S. Army Corps of Engineers, Kansas City District: Vineland Chemical Company Superfund Site / NJ.** Developed final plan and design to restore rare and unusual wetland / stream ecosystem on arsenic-contaminated Superfund site. Refined design criteria for Atlantic white cedar (Chamaecyparis thyoides) hummocks for palustrine wetland system including zones of open water (stream) shallow emergent vegetation, scrub-shrub wetland and mixed deciduous and evergreen forest. Formulated soil and plant specifications, hydrology (inundation regimes) and vegetation patterns to optimize postremediation conditions. Developed design strategy to create complex and diverse natural community capable of regeneration and reestablishment of Atlantic white cedar community at site formally occupied by this valuable and endangered community.
- **U.S. Army Corps of Engineers, Baltimore District: WET Evaluation, Constructed Wetland Treatment System and Stream Restoration / Fort Drum NY.** Performed alternative biological analysis and conducted Wetland Evaluation Technique (WET) for the assessment of wetland functions and values. Using the most recent modification of the WET method, evaluated the wetland system adjacent to the landfill to assess present wetland functions and values. Used findings and results to design and construct a 6-acre photoremediation/constructed wetland treatment system to minimize effects of leachate seeps, contain sediments, and decrease levels of contamination downstream. Designed and implemented a best management program to restore functions to the degraded and disturbed stream system. The reconstructed wetland and stream system was reevaluated with the same WET method, with results that demonstrated the positive effect on habitat and wildlife, increased functions, and enhanced values.

VILLAGE OF HAVERSTRAW

Daria Navon

Ms. Navon has experience in several aspects of hazardous waste site investigation and remediation. Her projects have included performing Environmental Baseline Surveys (similar to 'Phase I' studies) at federal facilties, preparing work plans for site investigations, and specifying the use of innovative technologies to remediate contaminated media. Ms. Navon has worked on several large-scale Superfund projects in conjunction with the U.S. Army Corps of Engineers.

DETAILED EXPERIENCE

- **Naval Facilities Engineering Command, Northern Division: Environmental Baseline Surveys for NSGA Winter Harbor / Winter Harbor ME.** Performed an environmental baseline survey (EBS) to determine suitability for transfer of three of the properties that comprise the Naval Security Group Activity, Winter Harbor (NSGAWH). Properties included a housing development, the main base (containing approximately 50 buildings on a 100-acre tract), and the Corea Operations center. Collected and evaluated data pertaining to potential storage, release, treatment, and disposal of hazardous substances or petroleum products in and around the buildings. Developed remedial investigation work plan to address areas of concern identified during the EBS, including septic tanks, leachfields, former UST locations, and former locations of PCB transformers. Interpreted results of the investigation and recommended follow-up actions.
- **U.S. Army Corps of Engineers: Chemical Oxidation Pilot Study at the Watervliet Arsenal / NY.** Selected in-situ chemical oxidation to treat chlorinated VOCs in bedrock groundwater. Developed remediation work plan to address complexities of treating contamination in a fractured consolidated medium. Prepared cost estimate incorporating all aspects of treatment - well installation, chemical oxidant injection, and performance monitoring.
- **U.S. Army Corps of Engineers, Baltimore District: Full-Scale Landfarming Design at the Watervliet Arsenal / NY.** Prepared design-build work plan for remediation of 20,000 cubic yards of soil contaminated with polycyclic aromatic hydrocarbons (PAHs). Chosen remedy was soil excavation for on-site biological treatment using landfarming. Prepared Contract Documents including bid package, agreement, and detailed specifications. Participated in bid evaluation and selection. Performed construction management including response to RFI's and evaluation of change orders and submittals.
- **U.S. Army Corps of Engineers, Baltimore District: In-Situ Chemical Oxidation to Remediate Chlorinated VOCs at the Watervliet**

PROJECT ROLE: REMEDIAL DESIGN TEAM

Title / Firm

Engineer
Malcolm Pirnie, Inc.

Years of Experience

9

Education

BS Environmental Engineering University of Florida 1995
MS Environmental Engineering in Civil Engineering University of Texas, Austin 1997

Registrations and Certifications

Certified Construction Documents Technologist (CSI), 1999
Engineer in Training, 1996
Professional Engineer, 2002

Health and Safety Training

Hazardous Waste Operations Eight (8) hour refresher
Cardiopulmonary Resuscitation
Construction Safety Awareness
Confined Space Awareness
Hazardous Materials Transportation Training
First Aid
Medical

Special Recognition

'Thrust 2000' Fellow, Department of Engineering, University of Texas at Austin (1995-1997)

Employment History

Malcolm Pirnie, Inc. 1997 to present
The University of Texas at Austin 1995 to 1997
Camp, Dresser & McKee 1995 to 1995
Florida State University 1994 to 1994

Arsenal / NY. Selected in situ chemical oxidation to treat chlorinated VOCs in bedrock groundwater at the Watervliet Arsenal. Compared patented processes offered by several chemical oxidation vendors to select the most appropriate technology for the site. Developed the remediation work plan to address complexities of treating contamination in a fractured bedrock setting. Prepared cost estimate incorporating all aspects of treatment - well installations, chemical oxidant injection, and performance monitoring.

- **U.S. Army Corps of Engineers, Kansas City District: Shallow Groundwater Remediation, Fried Industries Superfund Site / East Bruswick NJ.** Aided in the development of performance-based plans and specifications for the remediation of shallow aquifer remediation. Contaminants of concern include BTEX and chlorinated hydrocarbons. Utilized groundwater circulation well technology with off-gas treatment using granular activated carbon.
- **U.S. Army Corps of Engineers, Kansas City District: Soils Remediation, Vineland Chemical Company Superfund Site / NJ.** Prepared design specifications for the remediation of over 200,000 cubic yards of arsenic-contaminated soil. Design entailed excavation of contaminated soils for treatment at an on-site soil washing plant. Used SpecsIntact software to submit specifications in Corps-Guide format. Ran SpecsIntact Quality Assurance reports to verify accuracy of technical references, submittals and other requirements. Prepared a Design Analysis Report detailing the intent of the design.
- **U.S. Army Corps of Engineers, Kansas City District: FUSRAP Maywood Superfund Site, PDI Work Plan / Boroughs of Maywood and Lodi NJ.** Assisted in preparation of a work plan for predesign investigation of the FUSRAP Maywood Superfund Site. Site consists of 24 commercial and governmental properties potentially containing low-level radiological contamination. The work plan was developed to address data gaps in radiological, chemical, and geotechnical information, as well as to address any additional information required to complete a remedial design. Compiled results from the predesign investigation including gamma survey data, radiological soil concentration results, and environmental data. Reported results for each property with a description of the means and methods used during the investigations.
- **University of Texas / Austin TX.** Worked as a graduate research assistant under Dr. David Daniel and Dr. Raymond Loehr, investigating in-situ permeable reactive walls for passive groundwater remediation. Explored the feasibility of using a biodegradable trenching slurry to install reactive walls composed of iron filings.

VILLAGE OF HAVERSTRAW

Kenneth A. Davis

Mr. Davis is experienced in solid waste and environmental engineering. His solid waste project work has included waste management studies, design of transfer stations, and landfill sitting, design, and closure. He has considerable experience in the assessment and control of landfill gas migration. Mr. Davis has extensive knowledge of the regulatory and technical requirements for landfill design, construction, and operation. He has worked on landfill projects across the United States, the Republic of Korea, the Kingdom of Thailand, and the Philippines.

DETAILED EXPERIENCE

- **Town of Southampton: North Sea Landfill Construction Administration / Southampton NY.** Construction administration and quality assurance/quality control during construction of the Cell No. 2 cap and Cell No. 3 liners, leachate management, and perimeter gas monitoring system for all of the landfilled areas.
- **Lemberger Industrial Waste Landfill / WI.** Closure design and construction management for the Lemberger Transport and Recycling Superfund Site, which had received industrial and hazardous waste. Closure of the site included a composite cap, perimeter slurry trench cut-off wall, leachate collection, and leachate treatment.
- **U.S. Environmental Protection Agency, Region 2: Remedial Action at Syosset Landfill / Oyster Bay NY.** Provided technical oversight on the closure of a landfill on U.S. EPA's National Priorities List.
- **R-II Builders, Inc.: Excavation, Redevelopment, and Closure of Smokey Mountain Landfill / Manila, Philippines.** Provided supervision of field reconnaissance and evaluation of the landfill's closure and development alternatives. Provided construction management and quality assurance/quality control during construction of cap and gas migration control systems.
- **Town of Islip: Blydenburgh Road Landfill and Ash Monofill / Islip NY.** Design and preparation of plans, specifications, and engineering reports for a vertical "piggyback" expansion/closure of the landfill.
- **Town of Southampton: North Sea Landfill Gas Collection and Disposal / Southampton NY.** Design, preparation of contract documents, and construction administration of a gas collection/flare system for Cells 2 and 3.
- **Town of Southampton: North Sea Landfill Cell No. 2 Closure Design and Cell No. 3 Double Liner and Leachate Management System / Southampton NY.** Closure design, contract document prepara-

PROJECT ROLE: REMEDIAL DESIGN TEAM

Title/Firm

Senior Project Engineer
Malcolm Pirnie, Inc.

Years of Experience

25

Education

AAS Civil Technology Mohawk Valley Community College 1975
BCE Civil Engineering Rochester Institute of Technology 1978

Registrations and Certifications

Professional Engineer, 1983
Certified Troxier Nuclear Moisture-Density Gauge Operator, 2001

Health and Safety Training

Hazardous Waste Operations Eight (8) hour refresher
Bloodborne Pathogens Exposure Control
Cardiopulmonary Resuscitation
Construction Safety Awareness
First Aid
Medical
Hazardous Waste Operations Site Supervisor

Societies

National Society of Professional Engineers

Employment History

Malcolm Pirnie, Inc. 1986 to present
Elson T. Killam Associates, Inc. 1981 to 1986
Barton & Loguidice, P.C. 1978 to 1981

tion, construction administration, and quality assurance/quality control of the closure.

PUBLICATIONS

Parish, G.K., Pionk, R.D., Davis, K.A., **"Avoiding Disaster: Emergency Gas Extraction at an Abandoned Landfill Site,"** *MSW Management*, May/June 2003.

Druback, G.W., Tieman, G.E., Davis, K.A., Weidner, C.H., **"Stability Considerations of Vertical Landfill Expansion,"** 1990 Publication of the Year, American Society for Testing and Materials, Publication STP 1070.

Druback, G.W., Davis, K.A., Tieman, G.E., Weidner, C.H., **"Islip, New York: Designing a Municipal Landfill Vertical Expansion or 'Piggyback',"** presented at Waste Tech 88, National Solid Wastes Management Association, Boston MA, 1988.

VILLAGE OF HAVERSTRAW

Steven A. Lauria

Mr. Lauria has experience in storm water, gas, and leachate management design for landfill and remediation projects. He has participated on several design teams preparing storm water system layouts, design level plans and specifications, and construction certification reports. Mr. Lauria is currently working as part of the engineering design team for the NYSDEC sponsored Beaver Swamp Brook Restoration and Redevelopment.

DETAILED EXPERIENCE

- **Town of Harrison: Beaver Swamp Brook (BSB) Restoration / NY.** Supervised test pit excavation of the Beaver Swamp Brook in order to delineate, classify, and quantify the extent of contamination. Assisted in the completion of the Beaver Swamp Brook Site Investigation/ Remedial Alternatives Report, and Brownfields Program and SEQR applications. Is currently a key member of the engineering design team responsible for the following design elements:
  - Stormwater Design, Site Grading, Geotechnical Analysis, and Wetland Restoration pertaining to the Brownfields remediation.
  - Development of design level plans and specifications.
  - Coordination of the conceptual design for the BSB Redevelopment.
- **Connecticut Resources Recovery Authority: Yaworski Landfill Closure / Canterbury** CT. Participated on the engineering design team and was responsible for developing a Design Alternatives Report, focusing on the cap system, storm water, gas, and leachate management components. Completed the 90% design level documents pertaining to the cap system and storm water control for submittal to the CTDEP.
- **Warren County Pollution Control Financing Authority: Warren County Landfill / NJ.** Provided office engineering support and field oversight for the installation of geosynthetics in Cell 4 including HDPE geomembrane, Geosynthetic Clay Liner (GCL), geotextile, and geocomposite. Responsible for resolving issues related to geomembrane installation with the Contractor. Prepared Construction Certification Report for Cell 4 construction.
- **Delaware Solid Waste Authority: Route 5/ Milford Solid Waste Transfer Station Design /DE.** Responsible for leading efforts related to the storm water management design for the Route 5 and Milford projects. His responsibilities included:
  - Coordinating with project team members to develop the proposed storm water management system layout
  - Preparing computations for storm water structures, pavement, and traffic analysis

PROJECT ROLE:
REMEDIAL DESIGN TEAM

Title/Firm
Engineer
Malcolm Pirnie, Inc.

Years of Experience
2

Education
BS Environmental Engineering
Rensselaer Polytechnic Institute 2001

Registrations and Certifications
Engineer-in-Training (NY), 2003

Societies
American Society of Civil Engineers (Member)
Air & Waste Management Association (Member)

Employment History
Malcolm Pirnie, Inc. 2002 to present
Rensselaer Polytechnic Institute 2000 to 2001

VILLAGE OF HAVERSTRAW

Leonard J. Warner

Mr. Warner has extensive experience in the design and execution of environmental site investigations and field sampling activities. His responsibilities include the implementation of field sampling programs, the supervision of subcontractors, and the evaluation and presentation of the resulting data. Mr. Warner's experience with field sampling tasks extends to the preparation and implementation of site-specific health and safety plans. He also assists in the preparation of remedial designs for the mitigation of contaminated sites. Mr. Warner coordinates proposed site activities with appropriate federal and state environmental regulatory authorities to gain regulatory approval of project investigative and remedial activities.

DETAILED EXPERIENCE

- **Town of Harrison: Environmental Assessment of Beaver Swamp Brook / NY.** Conducted environmental assessment of Beaver Swamp Brook wetland area to evaluate potential impact from adjacent industrial properties. Conducted field surveys and environmental sample collection, including a soil vapor survey, magnetic locator survey, surface water and sediment sampling, test pit investigation, and hand auger soil sampling. Work conducted under New York State Brownfields grant to support redevelopment of the site as a nature park/preserve.
- **City of New Rochelle: Weyman Avenue Urban Renewal Project / NY.** Supervised ash fill, soil, surface water, and groundwater sampling activities at a former municipal incinerator site to support remedial design and commercial redevelopment. Prepared closure investigation report presenting and interpreting analytical results. Assisted in preparation of conceptual closure plan design document for capping and redevelopment of the site. Conducting ongoing review of developer submittals to regulatory authorities regarding remedial construction and postclosure monitoring and maintenance.
- **City of New Rochelle: Pinebrook Tennis Court Site / NY.** Prepared field sampling plan and supervised test pit excavation, soil sampling, and soil gas survey. Evaluated analytical results and prepared remedial action plan. Presented findings and recommendations to environmental regulatory authorities. Prepared conceptual closure plan for mitigation of construction and demolition debris disposed at site.
- **New York City Bureau of Housing Reclamation and Development: Environmental Investigation / NY.** Supervised sampling activities for a Phase II property investigation. All sampling, analytical, and

PROJECT ROLE: ENVIRONMENTAL INVESTIGATION

Title/Firm

Project Engineer
Malcolm Pirnie, Inc.

Years of Experience

12

Education

BSE Aerospace Engineering University of Michigan 1988
Craduate studies in Applied Hydrogeology Queens College
Craduate studies in Remediation of Contaminated Sites Manhattan College

Registrations and Certifications

Engineer in Training, 1995

Health and Safety Training

Hazardous Waste Operations Eight (8) hour refresher
Asbestos Hazard Emergency Response Act Building Inspector Initial / Refresher
Construction Safety Awareness
Hazard Communications
Respiratory Protection
Hazardous Waste Operations Site Supervisor

Employment History

Malcolm Pirnie, Inc. 1991 to present
Hazardous Waste Engineering Consultants 1990 to 1991

reporting procedures were conducted in accordance with the Contract Laboratory Program (CLP).

- **New York City Transit Authority: Merrick Blvd. Site Phase II Assessment / Queens NY.** Collected groundwater and soil samples at a commercial property to reassess a previously characterized volatile organic groundwater plume and former underground storage tank locations. Prepared GIS-Key mapping of groundwater contours and extent of contaminant plume. Prepared report presenting and interpreting collected data with regard to property acquisition and redevelopment decision-making, including remedial options and conceptual costs.
- **Scenic Hudson, Inc.: Environmental Assessment, Kingston Landing Site NY.** Prepared Phase I environmental assessment for waterfront property to evaluate environmental issues related to acquisition and redevelopment. Prepared report of Phase II test pit excavation and environmental sampling activities subsequently conducted. Prepared conceptual remedial cost estimate for mitigation of petroleum contamination observed on-site.
- **U.S. Army Corps of Engineers, Kansas City District: Marathon Battery Superfund Site / Cold Spring NY.** Conducted environmental sampling and supervised subcontractors during remedial design investigations at the site. Sampled soils, groundwater, debris, building surfaces, transformer dielectric fluid, drummed waste, and tank contents. Assisted in preparation of remedial design specifications for underground storage tank removal, transformer removal, and health and safety planning. Provided health and safety oversight for archaeological subcontractor. Conducted construction oversight during remediation.
- **U.S. Army Corps of Engineers, Kansas City District: Vineland Chemical Co. Superfund Site Field Investigations / NJ.** Collected soil and sediment samples from within the Blackwater Branch, the floodplain area, and the former plant grounds to support remedial design. Managed and tracked all environmental soil and sediment samples to ensure data quality objectives were met in accordance with the work plan and chemical quality management plan.
- **Village of Scarsdale, NY: Popham Road Bridge Replacement / NY.** Collected subsurface soil samples to investigate the environmental quality of a former gas station property adjacent to the Popham Road Bridge construction area. Evaluated laboratory data to assess presence or absence of petroleum contamination. Identified and assessed environmental concerns relating to property acquisition nec-

essary for bridge replacement, in regard to environmental liability and impacts on proposed construction.

- **BPT Properties, Foley Square, L.P., General Services Administration: Site Investigation and Remediation / Manhattan NY.** Conducted environmental soil sampling to delineate extent of subsurface petroleum contamination at U.S. Courthouse construction site. Assisted in preparation of remedial action plan for contaminated soil excavation and disposal. Supervised construction oversight during excavation phase and on-site analysis of soil samples for real-time, off-site disposal decision-making.
- **New York City Bureau of Housing Reclamation and Development: MAC Housing Project / Brooklyn NY.** Supervised subsurface soil and groundwater sampling program for Phase II environmental property investigation of a public housing development site.
- **New York City Transit Authority: Site Investigations / New York City NY.** Supervised environmental field sampling activities (soil, soil gas, groundwater) and geophysical surveys (ground-penetrating radar) in support of construction projects in the New York City area from 1993 to the present. Prepared reports evaluating field and laboratory analytical data. Prepared Phase I environmental site assessments for property acquisitions.
- **U.S. Army Corps of Engineers, Baltimore District: Defense Supply Center: Phase III Environmental Site Investigation / Philadelphia PA.** Managed environmental field investigations at 10 areas of concern at the Center, including underground and aboveground fuel storage tank sites, a fuel oil rail car unloading area and utility tunnel, and underground DDT storage tanks. The investigations were accomplished by advancing soil borings and collecting subsurface soil samples for laboratory analysis. The work was conducted to prepare for facility closure under the Base Realignment and Closure Act (BRAC).

PUBLICATIONS

Warner, L.J., **"City of New Rochelle - Weyman Avenue Urban Renewal Project,"** *Proceedings*, 71st Annual Meeting of the New York Water Environment Association, New York NY, February 1, 1999.

Moore, R.E., Warner, L.J., **"Environmental Restoration Projects Under the New York State Environmental Bond Act of 1996: Overview and Status Update,"** New York/New Jersey Environmental Compliance *Update*, pp. 7-8, February 1997.

Appendix B

SITE SPECIFIC HEALTH AND SAFETY PLAN

MALCOLM PIRNIE

SECTION 1: GENERAL INFORMATION AND DISCLAIMER		PROJECT NUMBER:	4879-001
PROJECT NAME:	Damiani and Chair Factory Site Assessments	CLIENT NAME:	Village of Haverstraw, NY
PROJECT MANAGER:	Anthony Catalano, P.E. DEE	PROJECT LEADER:	Jason Rivera
PREPARED BY:	Anthony Catalano, P.E. DEE	DATE:	2/18/2004

NOTE: This site specific Health and Safety Plan - Short Form (HASP-SF) has been prepared for use by **Malcolm Pirnie, Inc.** employees for work at this site / facility. The plan is written for the **specific site / facility conditions, purposes, tasks, dates and personnel specified, and must be amended and reviewed by those personnel named in Section 4 if these conditions change.** Malcolm Pirnie, Inc. is not responsible for its use by others.

Subcontractors shall be solely responsible for the health and safety of their employees and shall comply with all applicable laws and regulations. In accordance with 1910.120(b)(1)(iv) and (v), Malcolm Pirnie, Inc. will inform subcontractors of the site / facility emergency response procedures, and any potential fire, explosion, health, safety or other hazards by making this Site Specific Health and Safety Plan and site information obtained by others available during regular business hours. All contractors and subcontractors are responsible for: (1) developing their own Health and Safety Plan, including a written Hazard Communication Program and any other written hazard specific or safety programs required by federal, state and local laws and regulations, that details subcontractor tasks, potential or actual hazards identified as a result of a risk analysis of those tasks, and the engineering controls, work practices and personal protective equipment to be utilized to minimize or eliminate employee exposure to the hazard; (2) providing their own personal protective equipment; (3) providing documentation that their employees have been health and safety trained in accordance with applicable federal, state and local laws and regulations; (4) providing evidence of medical surveillance and medical approvals for their employees; and (5) designating their own site safety officer responsible for ensuring that their employees comply with their own Health and Safety plan and taking any other additional measures required by their site activities.

Providing a copy of this Malcolm Pirnie plan to subcontractors, does not establish, nor is it intended to establish a "joint employer" relationship between the Contractor and Malcolm Pirnie. This allowance does not establish, nor is it intended to establish, a direct or indirect employer/employee relationship with subcontractor's employees.

THIS SITE SPECIFIC HASP MUST BE REVIEWED AND APPROVED BY CORPORATE HEALTH AND SAFETY FOR ONE OR MORE OF THE FOLLOWING CONDITIONS: IF AN UPGRADE TO "LEVEL C" OR ABOVE IS ANTICIPATED; A PERMIT REQUIRED CONFINED SPACE ENTRY OR ENTRY INTO AN EXCAVATION IS ANTICIPATED; SAMPLING OF UNKNOWN DRUMS AND/OR IN UNKNOWN CONDITIONS IS ANTICIPATED, OR IF THERE MAY BE RADIATION LEVELS GREATER THAN 0.5 mR (500μR)/HOUR.

SECTION 2: EMERGENCY INFORMATION

(A) LOCAL RESOURCES	SERVICE NAME	TELEPHONE NUMBER
EMERGENCY MEDICAL SERVICES	Use e_911 System	911
HOSPITAL (Map attached)	Nyack Hospital	(845) 348-2000
FIRE DEPARTMENT	Rescue Hook & Ladder Company No. 1	(845) 429-9861
POLICE / SECURITY	Haverstraw Police Department	(845) 429-5711
HAZMAT/ SPILL / OTHER RESPONSE	N/A	

(B) CORPORATE RESOURCES

MALCOLM PIRNIE 24 / 7 EMERGENCY / INCIDENT TELEPHONE NUMBERS		**(800) 478-6870 (24 HOURS)**
CORPORATE HEALTH AND SAFETY **	MARK MCGOWAN, CIH, CSP	(914) 641-2484 WHI
	JOSEPH GOLDEN, EMT-P, CET, CHMM	(914) 641-2978 WHI
CORPORATE HEALTH PHYSICIST	LES SKOSKI	(201) 398-4377 NNJ
CORPORATE HUMAN RESOURCES **	PATRICIA OLSIEWICZ (WORKERS COMP / OSHA LOG)	(914) 641-2913 WHI
LEGAL DEPARTMENT **	JERRY CAVALUZZI	(914) 641-2950 WHI
	**** TO BE NOTIFIED IN CASE OF ACCIDENT**	

SECTION 3: PROJECT INFORMATION

(A) SITE / FACILITY INFORMATION:

SITE NAME: Damiani and Chair Factory Sites
Brownfield Redevelopment Project

ADDRESS: 4 Allison Avenue & 30 Liberty Street

TOWNSHIP/ COUNTY: Village of Haverstraw, NY

☐ FEDERAL ☒ STATE ☐ MUNICIPAL / REGIONAL ☐ PRIVATE

SITE CLIENT CONTACT: Joe Corless, P.E., Village Engineer

PHONE NUMBER:

SITE SAFETY CONTACT: See Above

☐ HAZARDOUS (RCRA)	☐ UST / LUST	☐ REFINERY
☐ HAZARDOUS (CERCLA / STATE)	☒ BROWNFIELD	☐ WTP / WWTP
☐ CONSTRUCTION	☐ CHEMICAL PLANT	☒ OTHER:
☐ LANDFILL (NON-HAZARDOUS)	☐ CHEMICAL PLANT	Waterfront properties
☐ ACTIVE	☐ INACTIVE	
☒ HAZARDOUS WASTE	☒ SOLID WASTE	☐ CONSTRUCTION
☐ HYDROGEOLOGY	☐ ENVIRONMENTAL	☐ AIR / ODOR
☐ WASTE WATER	☐ WATER	☐ OTHER:
☐ PRE-JOB VISIT	☐ AUDIT	☐ AIR ☐ SEDIMENT
☐ (SUB) CONTRACTOR OVERSIGHT	☐ OTHER:	☐ SURFACE WATER ☐ SURFACE SOIL
☐ CONSTRUCTION MGMT		☒ GROUND WATER ☐ LANDFILL
☐ INSPECTION		☐ WASTE WATER ☐ OTHER
☐ INVESTIGATION SURVEY		☐ WASTE STREAM

DATE(S) OF FIELD ACTIVITIES: To be determined

(E) FIELD TASKS

MALCOLM PIRNIE TASKS (List field tasks to be performed by Malcolm Pirnie staff)

M1. Supervise retrieval of subsurface soil and groundwater samples by a Geoprobe subcontractor.

M2. Manage soil and groundwater samples for subsequent laboratory analysis.

M3. Supervise excavation of test pits by an excavation subcontractor; visually clasify potential buried debris and soils.

M4.

TASKS PERFORMED BY OTHERS (List field tasks to be performed by client, subcontractors, or contractors)

01. To be determined.

02. To be determined.

03.

04.

SECTION 4: PROJECT SAFETY ORGANIZATION, HEALTH AND SAFETY TRAINING, AND MEDICAL MONITORING

(A) PROJECT HEALTH AND SAFETY ROLES, RESPONSIBILITIES AND COORDINATION

PROJECT OFFICER	The Project Officer (PO) is ultimately responsible for project performance. The PO seeks and gets appropriate approvals for risk management decisions (e.g. from Regional/Practice Director(s), Legal Council, Corporate Health and Safety), and selects and effective and qualified project team. The PO supports the Project Manager or Deputy Project Manager with appropriate resources.
PROJECT MANAGER DEPUTY PROJECT MANAGER	The Project Manager (PM) has the responsibility for executing the project in accordance with the scope of work and good engineering practice. The PM will supervise the allocation of resources and staff to implement specific aspects of this HASP and may delegate authority to expedite and facilitate any application of the program. The PM implements and executes an effective program of site-specific personnel protection and accident prevention. The Project Manager reports to the Project Officer. Deputy Project Managers (DPM) are assigned all duties and responsibilities of the Site Safety Officer in his/her absence.
CORPORATE HEALTH & SAFETY	Corporate Health and Safety is responsible for Malcolm Pirnie's overall Health and Safety Program and provides project guidance on air monitoring methodology, data interpretation and assistance in determining appropriate project engineering controls, work practices, and personal protective equipment. Corporate Health and Safety also reviews and approve HASPs in accordance with Section 1.
SITE SAFETY OFFICER ALTERNATE SITE SAFETY OFFICER (S)	The Site Safety Officer (SSO) is responsible for interpreting and implementing the site health and safety provisions set out in this HASP, and will guide the efforts of field team personnel in their day-to-day compliance with this HASP. The SSO has the ability and authority to make necessary changes or additions to this HASP and provide technical assistance to field team personnel on problems relating to worksite safety. The SSO has the authority to correct safety-related deficiencies in materials or practice and to call a Project STOP in the most serious cases. Alternate Site Safety Officer (ASSO) is assigned all duties and responsibilities of the Site Safety Officer in his/her absence.
PUBLIC INFORMATION OFFICER:	The Public Information Officer (PIO) is responsible for all public, press and other news media request for information, and is the only person authorized to provide such information
SITE RECORDKEEPER:	The Site Recordkeeper is responsible for the documentation of all related heath and safety data documentation, including but not limited to metrological data, instrument calibration, accident and injury reports, and air monitoring data.
FIELD TEAM LEADER:	The Field Team Leader (FTL) is responsible for leading "on-site" activities of field team personnel, and to ensure field team personnel perform only those tasks that have been identified in this HASP.
FIELD TEAM PERSONNEL	Field personnel have the following health and safety responsibilities: • Implement the procedures set forth in the HASP; • Take all reasonable precautions to prevent injury to themselves and their fellow employees; and • Perform only those tasks that they believe they can do safely, and immediately report any accidents and/or unsafe conditions in accordance with Section 1.

(B) PROJECT TEAM - The following Malcolm Pirnie personnel are designated to carry out the stated project job functions on site. THE SITE SAFETY OFFICER, OR A DESIGNATED ALTERNATE WILL BE ON-SITE DURING ALL SITE ACTIVITIES. (NOTE: One person may carry out more than one job function.)

PROJECT MANAGER: Anthony Catalano P.E. DEE

PROJECT OFFICER:

SITE SAFETY OFFICER: Len Warner

ALTERNATE SAFETY OFFICER(S):

PUBLIC INFORMATION OFFICER: Joe Corless, P.E.

SITE RECORDKEEPER: Len Warner

FIELD TEAM LEADER: Len Warner

FIELD TEAM PERSONNEL: Steve Lauria

Jason Rivera

The following subcontractors and governmental agencies have been informed by Malcolm Pirnie of emergency response procedures, and any potential fire, explosion, health, safety or other hazards of the site / facility by making this Site Specific Health and Safety Plan and site information obtained by others available during regular business hours. Subcontractors and governmental agencies shall be solely responsible for the health and safety of their employees and shall comply with all applicable laws and regulations as described in Section 1 of this plan.

SUBCONTRACTOR(S):

FEDERAL AND STATE AGENCY REPS: Mr. Mike Ryan, NYSDEC

OTHER AGENCY REPS:

(C) HEALTH AND SAFETY TRAINING, MEDICAL MONITORING, AND FIT TESTING PROGRAM

The following project staff is included in the Malcolm Pirnie Health and Safety Training and Medical Monitoring programs. The details of these programs can be found in the Health and Safety Policies and Written Programs. (NOTE: At least one CPR/First Aid Trained person must be on-site during HAZWOPER and confined space entry activities.)

	HAZWOPER TRAINING					OTHER TRAINING						
NAME	INITIAL (DATE)	8HR (DATE)	MGR (DATE)	DOT (DATE)	CSE (DATE)	CPR / First Aid / BBP (DATE)			MEDICAL (DATE)	FIT TEST MAKE / SIZE / TYPE		(DATE)
Jason Rivera	12/03						08/02		09/03			
Leonard Warner	05/90	12/03				04/02	04/02	08/01	05/03			

SECTION 5: HAZARD ANALYSIS

(A) **ACTUAL OR POTENTIAL PHYSICAL HAZARDS** – (Check all that apply to Malcolm Pimie activities)

- [x] ANIMALS / PLANTS
- [ ] ASBESTOS / LEAD
- [x] CHEMICAL EXPOSURE (See Section 5B/5C)
- [ ] CONFINED SPACE (See Section 12)
- [ ] DEMOLITION
- [x] DRILLING
- [ ] DRUM HANDLING
- [ ] DUST, HARMFUL
- [ ] DUST, NUISANCE
- [ ] ELECTRICAL
- [x] EXCAVATIONS (See Section 13)
- [ ] EXTREME COLD (See Section 10)
- [ ] FALL, >6' VERTICAL
- [ ] FALLING OBJECTS
- [ ] HEAT STRESS
- [x] HEAVY EQUIPMT
- [ ] HEAVY LIFTING
- [ ] HOT WORK
- [ ] HUNTING SEASON
- [ ] IMMERSION
- [ ] IONIZING RADIATION
- [ ] LIGHT RADIATION (i.e., Welding, High Intensity)
- [ ] LIMITED CONTACT
- [ ] MOVING PARTS (LO / TO)
- [ ] NOISE (> 85 dB)
- [ ] NON-IONIZING RADIATION
- [x] OVERHEAD OBJECTS
- [ ] POWERED PLATFORMS
- [ ] POOR VISIBILITY
- [ ] ROLLING OBJECTS
- [ ] SCAFFOLDING
- [ ] SHARP OBJECTS
- [ ] STEEP / UNEVEN
- [ ] TERRAIN
- [ ] TRAFFIC (STRUCK BY)
- [ ] OTHER: _____

(B) **PRESENCE OF HAZARDOUS MATERIALS STORED OR USED ON SITE** (CHECK ALL THAT APPLY)

- [ ] YES — By Client / Owner
- [ ] YES — By Malcolm Pimie (See Section 11)
- [x] NO

TYPE

- [ ] EXPLOSIVES
- [ ] COMPRESSED GASES
- [ ] FLAMMABLE / COMBUSTIBLE LIQUIDS
- [ ] FLAMMABLE / REACTIVE SOLIDS
- [ ] OXIDIZERS
- [ ] TOXIC / INFECTIOUS
- [ ] RADIOACTIVE
- [ ] CORROSIVE
- [ ] MISCELLANEOUS
- [ ] HAZARDOUS WASTE (Stored)

(C) **CHEMICAL HAZARDS OF CONTAMINANTS INFORMATION**

(1) IDENTIFIED CONTAMINANTS - Known or suspected hazardous/toxic materials (attach historical information, physical description, map of contamination and tabulated data, if available)

SUBSTANCES INVOLVED	CHARACTERISTICS	MEDIA	ESTIMATED CONCENTRATIONS	LOWEST PEL, or TLV
Petroleum (e.g. BTEX & MTBE)	VO, TO, IG	SL & GW		1 [x] PPM [ ] mg/m^3
Semivolatiles (cPAHs)	TO	SL		0.2 [x] PPM [ ] mg/m^3
Toxic Metals	TO	SL		0.01 [x] PPM [ ] mg/m^3

Media types: GW (ground water), SW (surface water), WW (wastewater), AIR (air), SL (soil), SD (sediment), WL (waste, liquid), WS (waste, solid), WD (waste, sludge), WG (waste, gas), OT (other).

Characteristics: CA (corrosive, acid), CC (corrosive, caustic), IG (ignitable), RA (radioactive), VO (volatile), TO (toxic), RE (reactive), BIO (infectious), UN (unknown), OT (other, describe

(2) DESCRIBE POTENTIAL FOR CONTACT WITH EACH MEDIA TYPE FOR EACH OF THE MPI TASKS LISTED IN SEC 3 (E):

MPI TASK	ROUTE OF EXPOSURE (INHAL/INGEST/CONTACT/ABSORB)	POTENTIAL FOR CONTACT (HIGH / MEDIUM / LOW)	METHOD OF CONTROL
M1	Inhalation	Low	Air Monitoring
M2	Inhalation and Contact	Medium	Air Monitoring and PPE
M3	Inhalation and Contact	Medium	Air Monitoring and PPE

The Site Safety Officer will brief the MPI field team on symptoms and signs of overexposure to chemical hazards

SECTION 6: SITE CONTROL MEASURES

(A) WORK ZONES - EXCAVATIONS, DRILLING OPERATIONS, AND HEAVY EQUIPMENT

Len Warner has been designated to coordinate access control and security for Malcolm Pirnie operations on site. It is a Malcolm Pirnie policy that Malcolm Pirnie personnel will not enter trench or excavated areas without approval of Corporate Health and Safety. A safe perimeter has been established at the boundary of any excavation and/or a safe distance from excavators, drill rigs and other heavy equipment.

These boundaries are identified by: 20 foot radius around a specific sampling point or test pit

No unauthorized person should be within this area.

(B) WORK ZONES - CONTAMINATION

The prevailing wind conditions are to be determined in field A wind direction indicator is used to determine daily wind direction. The Command Post is located upwind from the Exclusion Zone or at a sufficient distance to prevent exposure should a release occur.

Control boundaries have been established and Exclusion Zone(s) (the contaminated area) have been identified. (Attach site map)

These boundaries are identified by: The Exclusion Zone will be established at a 20 foot radius from a specific sampling point or test pit. The Contamination Reduction Zone (CRZ) will be established inside the boundary of the Lots under investigatioin, along the main ingress/egress route. The Suport Zone will be established at the Lot boundary, at the field vehicle.

No unauthorized person should be within this area.

SECTION 7: SAFETY PROCEDURES / EQUIPMENT REQUIRED

Identify all procedures and equipment needed to eliminate or minimize exposure to hazards identified in Section 5.

- [x] AIR MONITORING EQUIPMENT (See Section 9)
- [ ] BARRIER TAPE
- [ ] COMMUNICATIONS - ONSITE
- [ ] COMMUNICATIONS - OFFSITE (i.e., cell/digital phones if no other means)
- [ ] CONFINED SPACE PROGRAM & EQUIPMENT (See Section 12)
- [x] EYE WASH
- [ ] EMERGENCY SHOWERS
- [ ] EMERGENCY AIR HORN
- [ ] FALL PROTECTION PROGRAM & EQUIPMENT
- [x] FIRE EXTINGUISHER(S) - ABC
- [x] FIRST AID KIT / BBP KIT
- [ ] FLOTATION DEVICE (USCG)
- [ ] GFCI EXTENSION CORDS
- [ ] HARNESS(S) / LIFELINE(S)
- [x] INSECT / TICK REPELLANT
- [ ] HUNTING SEASON
- [ ] LADDER(S)
- [ ] LIGHTING - HAND HELD
- [ ] LIGHTING - FIXED / EMERGENCY
- [ ] LOCKOUT/TAGOUT PROGRAM & EQUIPMENT
- [ ] MSDSs – ATTACHED (See Section 11)
- [ ] MSDSs - FACILITY / OTHERS
- [x] PPE - PHYSICAL HAZARDS (See Section 15)
- [x] PPE - CHEMICAL HAZARDS (See Section 15)
- [ ] RESPIRATORY PROTECTION PROGRAM & EQUIPMENT (APR) (See Section 15)
- [ ] RESPIRATORY PROTECTION PROGRAM & EQUIPMENT (SAR) (See Section 15)
- [ ] TRAFFIC CONES
- [ ] VENTILATION EQUIPMENT
- [ ] OTHER:

SECTION 8: **COMMUNICATIONS AND SAFE WORK PRACTICES**

(A) COMMUNICATIONS - ONSITE

Whenever possible, communications between site personnel should be face-to-face. When verbal communications is not possible, radio communications shall be established.

In case of radio communications failure, or when respiratory protection is in use, the following hand signals will be used:

OK; I AM ALL RIGHT; I UNDERSTAND	THUMBS UP
NO; NEGATIVE	THUMBS DOWN
NEED ASSISTANCE	BOTH HANDS ON TOP OF HEAD
DANGER - NEED TO LEAVE AREA, NO QUESTIONS	GRIP PARTNERS WRIST WITH BOTH HANDS
HAVING DIFFICULTY BREATHING	HANDS TO THROAT

(B) COMMUNICATIONS - OFF SITE

If applicable, telephone communication to the Command Post should be established as soon as practical.

Telephone numbers that can be used to reach the command post are: _____ and _____

(C) SAFE WORK PRACTICES

1. A "BUDDY SYSTEM" IN WHICH ANOTHER WORKER IS CLOSE ENOUGH TO RENDER IMMEDIATE AID WILL BE IN EFFECT. CLIENTS AND/OR CONTRACTORS MAY SERVE AS A "DESIGNATED BUDDY."
2. WHERE THE EYES OR BODY MAY BE EXPOSED TO CORROSIVE MATERIALS, SUITABLE FACILITIES FOR QUICK DRENCHING OR FLUSHING SHALL BE AVAILABLE FOR IMMEDIATE USE (SEE SECTION 7).
3. DO NOT KNEEL ON THE GROUND WHEN CHEMICAL PROTECTIVE CLOTHING IS BEING USE.
4. IF DRILLING EQUIPMENT IS INVOLVED, HAVE A CURRENT UTILITY SURVEY, AND KNOW WHERE THE 'KILL SWITCH' IS.
5. CONTACT WITH SAMPLES, EXCAVATED MATERIALS, OR OTHER CONTAMINATED MATERIALS MUST BE MINIMIZED.
6. ALL ELECTRICAL EQUIPMENT USED IN OUTSIDE LOCATIONS, WET AREAS OR NEAR WATER MUST BE PLUGGED INTO GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTED OUTLETS (SEE SECTION 7).
7. IN THE EVENT OF TREACHEROUS WEATHER-RELATED WORKING CONDITIONS (I.E., THUNDERSTORM, LIMITED VISIBILITY, EXTREME COLD OR HEAT) FIELD TASKS WILL BE SUSPENDED UNTIL CONDITIONS IMPROVE OR APPROPRIATE PROTECTION FROM THE ELEMENTS IS PROVIDED.
8. SMOKING, EATING, CHEWING GUM OR TOBACCO, OR DRINKING ARE FORBIDDEN EXCEPT IN CLEAN OR DESIGNATED AREAS.
9. USE OF CONTACT LENSES NEAR CHEMICALS OR DURING USE OF RESPIRATORY PROTECTION IS PROHIBITED AT ALL TIMES.
10. GOOD HOUSEKEEPING PRACTICES ARE TO BE MAINTAINED.
11. SITE / FACILITY SPECIFIC SAFE WORK PRACTICES:

_____

_____

_____

SECTION 9: ENVIRONMENTAL MONITORING ☐ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

(A) The following environmental monitoring instruments shall be used on site at the specified intervals and recorded in the site logbook. (NOTE: If monitoring period is "OTHER", monitoring schedule will be attached to this plan.)

EQUIPMENT	MONITORING PERIOD				ACTION LEVEL
☐ Combustible Gas Indicator	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☐ O_2 Meter	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☐ Toxics: ☐ CO ☐ H_2S	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☐ Other: _____	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☒ PID (Lamp 10.2 eV)	☒ Continuous	☐ Hourly	☐ x Day	☐ Other	1ppm above bkgrnd
☒ FID					
☐ Colorimetric tubes:					
_____	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
_____	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☐ Radiation: ☐ α ☐ β ☐ gamma	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☒ Respirable Dust Meter	☒ Continuous	☐ Hourly	☐ x Day	☐ Other	5 mg/m3
☐ Noise Meter	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
☐ Other:	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
_____	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	
_____	☐ Continuous	☐ Hourly	☐ x Day	☐ Other	

(B) Monitoring equipment is to calibrated according to manufacturers' instructions. Record calibration data and air concentrations in the Health and Safety on-site log book.

(C) Recommended Action Levels for Upgrade or Downgrade of Respiratory Protection, or Site Shutdown and Evacuation. These are average values. Consideration should be given to the potential for release of highly toxic compounds from the waste or from reaction by-products. Levels are for persistent (> 10 min) breathing zone measurements in non-confined spaces. **For unexpected conditions, stop all work and contact Corporate Health and Safety.**

Oxygen Levels	
Less than 19.5%	Level B necessary for work to start / continue. Consider toxicity potential.
19.5% to 23.5%	Work may start / continue. Investigate changes. Continuous monitoring.
Greater than 23.5%	PROHIBITED WORK CONDITION
Flammability / Explosive Hazards	
Less than 10% of LEL	Work may start / continue. Consider toxicity potential.
10% to 25% of LEL	Work may start / continue. Continuous monitoring.
Greater than 25% of LEL	PROHIBITED WORK CONDITION.
Uncharacterized Airborne Organic Vapors or Gases	
Background*	Work may start / continue. Continue to monitor conditions.
Up to 5 meter units (m.u. or "ppm") above background	Level C necessary for work to start / continue. Continuous monitoring. Use Colorimetric tubes to characterize vapors.
Up to 50 m.u. above background	Level B necessary for work to start / continue. Continuous monitoring.
Greater than 50 m.u.	PROHIBITED WORK CONDITION.
*** Off-site clean air measurement**	
Characterized Airborne Organic Vapors or Gases**	
Up to 50% of TLV, or PEL or REL	Work may start / continue. Continue to monitor conditions.
Up to 25 times the TLV, or PEL or REL	Level C necessary for work to start / continue. Continuous monitoring.
Up to 500 times the TLV, or PEL or REL	Level B necessary for work to start / continue. Continuous monitoring.
Greater than 500 times the TLV, or PEL or REL	PROHIBITED WORK CONDITION.
**** Use mixture calculations (% allowed = $3C_NEL_N$) if more than one contaminant is present.**	
Radiation	
Less than 0.5 mR/Hour (500 μR)	Work may start / continue. Continue to monitor conditions.
Up to 1 mR/Hour above background	Work may start / continue with Radiation Safety Officer present on site.
Greater than 1 mR/Hour above background	PROHIBITED WORK CONDITION.

SECTION 10: PERSONAL MONITORING ☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

(A) PERSONAL EXPOSURE SAMPLING (Consider if high levels of noise or high concentrations of lead, mercury or arsenic are present)

The following personal monitoring will be in effect on site: NA

A copy of personal monitoring results is to be sent to Corporate Health and Safety for inclusion in the Employee's Confidential Exposure Record File.

(B) HEAT / COLD STRESS MONITORING

The expected air temperature will be 75 °F. If it is determined that heat stress or cold stress monitoring is required (mandatory for heavy exertion in PPE at temperatures over 70°F, or at temperatures under 40°F or wind chill equivalent), the following procedures shall be followed (describe procedures in effect, for heat stress i.e., monitoring body temperature, body weight, pulse rate; for cold stress I.e., appropriate clothing, shelter breaks):

Coveralls (e.g. Tyvek) are not required, therefore heat stress monitoring is not planned.

SECTION 11: HAZARD COMMUNICATION PROGRAM ☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

If chemicals are introduced to the site by Malcolm Pimie (e.g., decontamination liquids, preservatives, etc.), a copy of the Malcolm Pirnie Hazard Communication Program and Material Safety Data Sheets (MSDSs) of chemicals introduced by Malcolm Pirnie to the site is attached to this plan. The Site Safety Officer will review this information with all field personnel prior to the start of the project, and will inform other employers (e.g., Owner, Contractor and Subcontractors) the availability and location of this information. The Comprehensive List of Chemicals introduced by Malcolm Pirnie to this site is:

All chemicals being introduced to the site, hazardous/potentially hazardous samples prepared at the site, and/or any hazardous materials previously sent to the site, that **will be stored at the site or will be transported from the site by common carrier**, will be packaged, labeled and identified as hazardous materials in accordance with U.S. Department of Transportation (DOT) and/or International Air Transport Association (IATA) regulations by a trained HazMat employee.

(NOTE: At multi-employer sites, the Site Safety Officer will obtain information, if applicable, on hazardous chemicals other employers may produce or introduce to the job site to which Malcolm Pirnie employees may be exposed, including the location of their written hazard communication program(s), labeling program(s), and Material Safety Data Sheet(s).

SECTION 12: CONFINED SPACE ENTRY ☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

If a permit-required confined space entry will be made on site, a copy of the Malcolm Pirnie Confined Space Entry Program, and a completed Malcolm Pirnie Confined Space Pre-Entry Inspection Check List will be attached to this plan. A Confined Space Entry Permit must be completed and posted outside the confined space prior to entry, and the entry will follow the Malcolm Pirnie Confined Space Entry written program. Permits are to be saved and logged with project documentation.

SECTION 13: EXCAVATION SAFETY ☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

Excavations being created in order to accomplish Malcolm Pirnie tasks or in progress during Malcolm Pirnie inspection of other activities or tasks, shall be shored or slopped or otherwise protected to prevent accidental collapse prior to entry, in accordance with Subpart F of 29 CFR 1926. It is Malcolm Pirnie policy that Malcolm Pirnie personnel will not enter trench or excavated areas without approval of Corporate Health and Safety. If an entry into an excavation by Malcolm Pirnie personnel is necessary, a Excavation Plan identifying the Competent Person and the protective measure to be used (i.e., sloping, shoring, trench box) will be attached to this plan.

SECTION 14: DECONTAMINATION PROCEDURES ☐ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

Personnel and equipment leaving the Exclusion Zone shall be thoroughly decontaminated. The Site Safety Officer is responsible for monitoring adherence with this decontamination plan.

A The Level D decontamination protocol shall be used with the following decontamination stations:

(1) Drop Bag for spent diposable nitrile gloves

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(Other)

The following decontamination equipment is required:

☐ Decon Pad (Plastic Sheet) ☐ Dry Brushes ☐ Buckets Other

☒ Trash Cans/Bags ☐ Wet Brushes ☐ Hose / Spray

Will be used as the decontamination solution

SECTION 15: PERSONAL PROTECTIVE EQUIPMENT

TASK *	RESPIRATORS & CARTRIDGE[1]	USE ** (See Section 16)	CLOTHING	GLOVES	BOOTS	OTHER
M1 - ME	NA	NA	N/S	N	SL	HH, G, HP

* Same as Section 3E

**UP = Upgrade
CONT = Continuous

NOTE: PPE use will be in accordance with Malcolm Pirnie's Health and Safety Policy and Written Programs

CODES:

RESPIRATORS[1]	CARTRIDGES[1]	CLOTHING	GLOVES[2]	BOOTS	OTHER
HF = Half Face APR	P = Particulate	N/S = No Special	Co = Cotton	SL = Leather Safety	HH = Hard Hat
FF = Full Face APR	OV = Organic Vapors	C = Coveralls	Le = Leather	H = Hip (Fireman)	G = Safety Glasses
ESCBA = Escape Bottle	AG = Acid Gas	T = Tyvek	L = Latex	O = Latex overboots	GP = Glare Protection
SAR = Airline	Mult = Multi-Gas/Vapor	Sx = Saranex	N = Nitrile		GI = Goggles - Impact
SCBA = SCBA	Other	PT = PE Tyvek	B = Butyl		GS = Goggles - Splash
			Neo = Neoprene		FS = Face Shield
			V = Viton		HP = Hearing Protection
			PVC = Polyvinyl Chloride		
			PVA = Polyvinyl Alcohol		
			Other:		

1 - List all that apply, i.e., FF w/ OV/AG/P

2 - Use same codes for clothing and boots of same material

Respiratory protection will be upgraded under the following conditions: if PID or dust monitoring exceeds action levels personnel are to backfill the test pit or boring underway, abandon the specific sampling point, and contact Corporate H&S for further direction.

The following cartridge change out schedule is to be followed onsite (attach any calculations to plan):

SECTION 16: EMERGENCY ACTION PLAN

The following standard emergency response procedures will be used by onsite personnel. The Site Safety Officer shall be notified of any onsite emergencies and be responsible for ensuring that the appropriate procedure are followed.

(A) EVACUATION

All work activities are suspended and the site is to be EVACUATED IMMEDIATELY, when there is a threat to life or health as determined by individual good judgement, i.e. fire, hazardous chemical spill, dangerous gas leak, severe weather (i.e., tornado); or when notified by other site / facility staff and local fire or police officials.

If an evacuation is called for, the emergency alarm system for weather-related, medical, fire and other evacuation emergencies is:

Evacuation from the Exclusion Zone should whenever possible occur through the decontamination line. In those situations where egress in this manner cannot occur, the following emergency escape routes have been designated (document on map if possible):

_____

_____

Once evacuated off site, all staff should gather at _____ which is a minimum of 250 feet away from the incident

(B) FIRE OR EXPLOSION

Upon discovery of a fire or an explosion, the above-designated emergency signal shall be sounded and all personnel shall assemble at the decontamination line. The fire department is to be notified and all personnel moved to a safe distance (minimum 250') from the involved area.

If a person's clothing should catch fire, burning clothing may be extinguished by having the individual drop to the floor and roll. If necessary, physically restrain the person and roll them around on the floor to smother the flames. Use a fire blanket or extinguisher if one is readily available and you have been trained in its use. Call emergency medical services if not already done so.

If a person's clothing should become saturated with a chemical, douse the individual with water from the nearest safety shower if available. Consult the chemical Material Safety Data Sheets (MSDSs) for further information. Call emergency medical services if indicated by the MSDSs.

NEVER RE-ENTER THE SITE / FACILITY until the emergency has been declared over and permission to re-enter has been given by site / facility health and safety staff or local fire or police officials. If any staff is unaccounted for, notify an individual in charge.

(C) MEDICAL EMERGENCY

If you discover a medical emergency and are by yourself, CALL OUT FOR HELP. When someone arrives, tell them to call for help. If no one comes or you know you are alone, provide whatever care you can for 1 minute, then make the call yourself. (See Section 2)

Upon notification of an injury in the Exclusion Zone, the designated emergency signal shall be sounded. All site personnel shall assemble at the decontamination line. The SSO or alternate should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the Support Zone. The onsite CPR/FA personnel shall initiate the appropriate first aid, and contact should be made for an ambulance (and other emergency services as needed) and with the designated medical facility (if required). No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

The hospital is _____ minutes from the site. Ambulance response time is _____ minutes. _____
of _____ was contacted on _____ and briefed on the situation, the potential hazards, and the substances involved. When IDLH conditions exist, arrangements should be made for onsite standby of emergency services.
A map for directions to the nearest hospital is attached to this plan. If not, the directions are: _____

_____

(D) SAFETY EQUIPMENT FAILURE

If any other equipment (i.e., air monitoring) on site fails to operate properly, the FTL and/or SSO shall be notified to determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the work area until the situation is evaluated and appropriate actions taken.

(E) FOLLOW UP

In all situations, when an on site / facility emergency results in evacuation of the work area, or a "large spill" has occurred, staff shall not resume work until:

- The conditions resulting in the emergency have been corrected;
- The hazards reassessed by the SSO and Corporate Health and Safety;
- The HASP has been reviewed by the SSO and Corporate Health and Safety; and
- Site personnel have been briefed on any changes in the HASP by the SSO.

SECTION 17: SPILL CONTAINMENT / CONTROL ☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

For most chemicals Introduced to the worksite, or under control of Malcolm Pirnie employees, spills of chemicals would be considered Incidental and would be controlled In the Immediate area of the spill. Such spills shall be handled utilizing precautions appropriate for the chemical characteristics specified in the MSDS for the chemical including spill control methods and selection and use of minimum personal protective equipment.

For chemicals introduced to the worksite, or under control of Malcolm Pirnie employees, that would cause a "large spill" (greater than 55 gallons), a copy of the appropriate Emergency Response Guidebook (ERG) guide shall be attached to this plan, and a spill response contractor shall be identified in Section 2.

SECTION 18: EMPLOYEE ACKNOWLEDGEMENTS

PLAN REVIEWED BY:		DATE
Project Manager:	Anthony Catalano, P.E. DEE	
Project Leader:	Jason Rivera	
Local H&S Coordinator:		
Corporate H & S		

I acknowledge that I have read the information on this HASP, attached Material Safety Data Sheets (MSDSs), DOT Emergency Response Guides, and Health and Safety Programs.
I understand the site / facility hazards as described and agree to comply with the contents of the plan.

EMPLOYEE (Print Name)

VISITOR (Print Name)

ATTACHED DOCUMENTS

☐ MSDS(s)	☐ Hazard Communication Written Program	☐ Confined Space Entry Written Program	☐ DOT ERG Guides
☒ Site Map	☐ Personal Protective Equipment Written Program	☐ Excavation Safety Plan	☐ Respiratory Protection Program
☒ Hospital Directions	☐ Emergency Action Plan	☐ Evacuation Routes	☐ Cartridge Change Out Calculations
☐ Other			

Appendix C

PROPOSED SI REPORT TABLE OF CONTENTS
Damiani and Empire State Chair Factory Sites, Haverstraw, NY

1.0 EXECUTIVE SUMMARY

2.0 INTRODUCTION
- 2.1 Purpose of the Report
- 2.2 Site Background
  - 2.2.1 Site Description
  - 2.2.2 Site History
  - 2.2.3 Previous Investigations
- 2.3 Report Organization

3.0 STUDY AREA INVESTIGATION
- 3.1 Describes field activities associated with site characterization.
  - 3.1.1 Surface Features (topographic mapping, etc.), natural and manmade features
  - 3.1.2 Surface Water and Sediment Investigations
  - 3.1.3 Soil and Vadose Zone Investigations
  - 3.1.4 Test Pit Investigations
- 3.2 If technical correspondence documenting field activities were prepared, they may be included in an appendix and summarized in this report chapter.

4.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA
- 4.1 Describes field activities to determine physical characteristics.
  - 4.1.1 Soils Physical Properties

5.0 SITE CHARACTERIZATION FINDINGS
- 5.1 Presents the results of site characterization, both natural chemical components and contaminants in the following media:
  - 5.1.1 Soils and Vadose Zone
  - 5.1.2 Surface Water and Sediments
  - 5.1.3 Soil Physical Properties
- 5.2 Analytical Data Evaluation

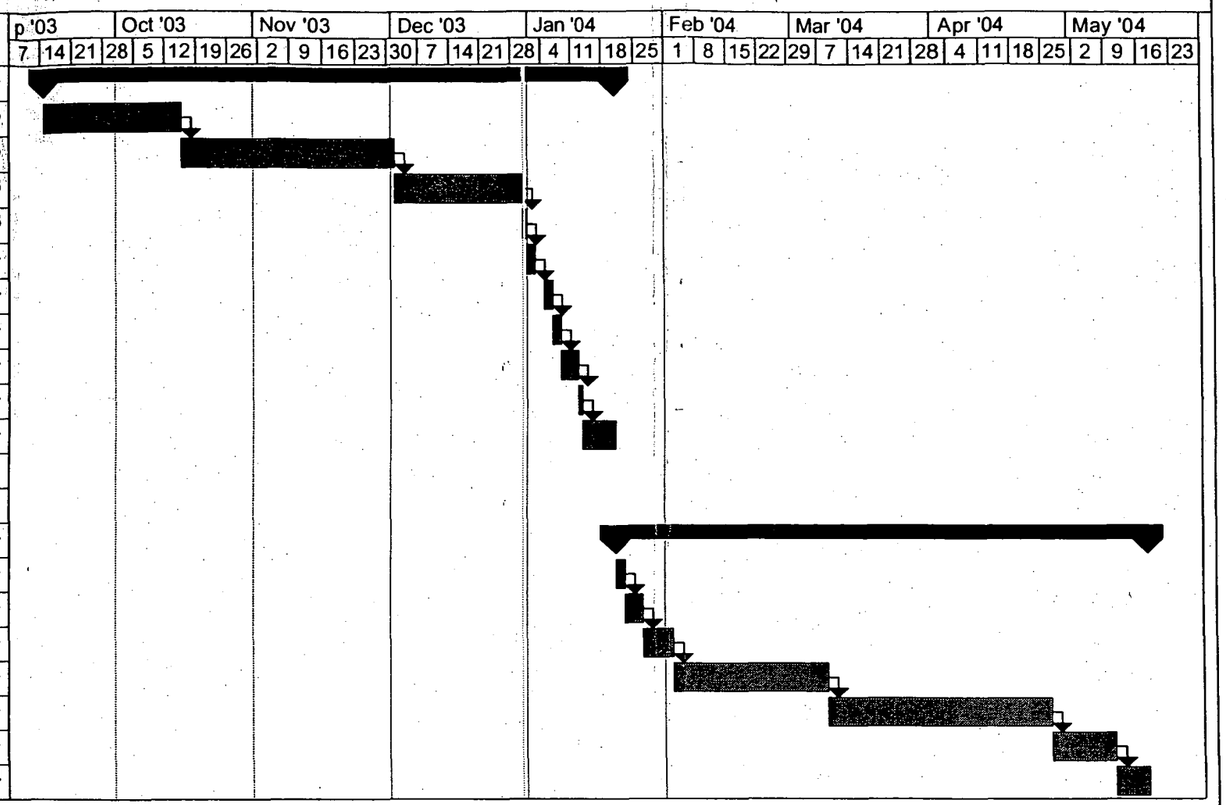
6.0 INTRODUCTION
- 6.1 Summary
  - 6.1.1 Site Characterization Findings
- 6.2 Conclusions
  - 6.2.1 Data Limitations and Recommendations for Future Work
  - 6.2.2 Remedial Action Alternatives and Conceptual Cost Estimates

APPENDICES

A. Technical Correspondence on Field Activities (if applicable)
B. Analytical Data and QA/QC Evaluation Results

Project Schedule for Damiani and Chair Factory Properties Phase I/ Phase II Studies

ID	Task Name	Duration	Start	Finish
1	**Phase I Damiani/Chair**	**92 days**	**Mon 9/15/03**	**Tue 1/20/04**
2	Draft of Project Work Plan	23 days	Mon 9/15/03	Wed 10/15/03
3	NYSDEC, Village, & RCDOH Review and Comment	33 days	Thu 10/16/03	Mon 12/1/03
4	Finalize Work Plan	21 days	Tue 12/2/03	Tue 12/30/03
5	Submit Work Plan	1 day	Wed 12/31/03	Wed 12/31/03
6	Review historic photography, maps, records	2 days	Thu 1/1/04	Fri 1/2/04
7	review federal/state computer databases for liabilities	2 days	Mon 1/5/04	Tue 1/6/04
8	Review environmental database reports	2 days	Wed 1/7/04	Thu 1/8/04
9	Review local, state, and federal wetlands/floodplain mapping	2 days	Fri 1/9/04	Mon 1/12/04
10	Site walkover/ interview/ field observations	1 day	Tue 1/13/04	Tue 1/13/04
11	Prepare Summary Report	5 days	Wed 1/14/04	Tue 1/20/04
12				
13				
14	**Phase II Damiani/ Chair (Preliminary)**	**84 days**	**Wed 1/21/04**	**Mon 5/17/04**
15	Update Project Work Plan	2 days	Wed 1/21/04	Thu 1/22/04
16	NYSDEC/ Village Review and Comment	2 days	Fri 1/23/04	Mon 1/26/04
17	Field Work	5 days	Tue 1/27/04	Mon 2/2/04
18	Lab Analysis and Validation	25 days	Tue 2/3/04	Mon 3/8/04
19	Site Investigation/ Remedial Alternatives Report (SIRAR)	35 days	Tue 3/9/04	Mon 4/26/04
20	NYSDEC/ Village Review and Comment	10 days	Tue 4/27/04	Mon 5/10/04
21	Finalize SIRAR	5 days	Tue 5/11/04	Mon 5/17/04



Project: Damiani and Chair Schedule
4879001
Date: Wed 12/31/03

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone