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**WORK PLAN  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
BB&S TREATED LUMBER CORPORATION SUPERFUND SITE**

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**Prepared for:**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF HAZARDOUS WASTE REMEDIATION**

**FEBRUARY 1996**

**MALCOLM PIRNIE, INC.**

**S-3515 Abbott Road  
P. O. Box 1938  
Buffalo, New York 14219**

February 7, 1996

Ms. Sally W. Dewes  
Environmental Engineer 2  
Division of Hazardous Waste Remediation  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-7010

Re: Response to Comments on BB&S Work Plan

Dear Ms. Dewes:

This letter highlights the changes that have been made to the attached work plan for the above-referenced project. These changes are the result of our telephone conversations, a fax from Kelly Bologna, and an internal review of the Health and Safety Plan. The changes include:

- Figure 1 in the Work plan and Appendix B, the Health and Safety Plan has been updated.
- The holding time of TOC has been changed from 2 days to 26 hours in Table 3-2.
- The project schedule in Section 4.0 has been updated with a total of 3.5 months cut from the project.
- The Health and Safety Plan has been revised to include the requirements of 29CFR1910.1080; requirements for inorganic arsenic sites. Our plan now includes personal air monitoring for all Malcolm Pirnie employees that will be on site. We have notified our subcontractors of this proposed change to our Health and Safety Plan and informed them that they would be responsible for conducting their own air monitoring. Costs associated with this additional monitoring have been included in the budget.
- Page 11 of Appendix A has been reworded to include the maintenance of ELAP certification.

Ms. Sally W. Dewes  
Division of Hazardous Waste Remediation


February 7, 1996  
Page 2

- The Schedule 2.11's have been modified to reduce program administration's hours as per NYSDEC Program Management. In addition, the mail expense in Tasks 2 and 5 have been increased to account for Citizen Participation mailings and one airline ticket for my participation in the first public meeting has been removed. Miscellaneous expenses have also been increased by ~~\$100~~ <sup>600</sup> for personal air monitoring on Schedule 2.11 (d-5).

If you have any questions concerning our responses to the NYSDEC comments, please contact me at (716)828-1300.

Very truly yours,

MALCOLM PIRNIE, INC.



Anne Marie C. McManus, P.E.  
Project Manager

Attachment

0266-323-100  
haf/ACM02076.L3

January 5, 1996

Ms. Sally W. Dewes  
Environmental Engineer 2  
Division of Hazardous Waste Remediation  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-7010

Re: WA#D002852  
Response to Comments on BB&S Work Plan

Dear Ms. Dewes:

This letter responds to the comments received from your office and Kelly Bologna regarding the work plan for the above-referenced project.

**Comments from Kelly Bologna dated December 1, 1995.**

- 1) **The administrative level of effort (LOE) is excessive. For the proposed LOE and duration of this project, it should be between 80-110 hours. The following are specific items that need a reduction in hours:**
  - a) **Preparation of Monthly Project Report and Updating WA Progress Schedule.**
  - b) **Preparation of Monthly CAP and Cost Control Reports.**
  - c) **Word Processing and Report Preparation.**

Response: We have reduced the administrative hours associated with preparation of the monthly progress reports and monthly CAP and cost control reports to the minimum we feel is appropriate for an eighteen-month duration project. We do not feel we can reduce word processing hours any further and still prepare draft and final work plan, RI report, engineering evaluation FS report and periodic correspondence over an eighteen month period. See Schedule 2.11(b-1) for revisions to the administrative hours.

- 2) **Schedule 2.11c should show a maximum reimbursement rate and estimated number of units for travel. This is missing for some tasks. How was the estimated lump sum cost for these items determined?**

Response: Travel was changed to airfare costs and broken out by estimated number of tickets needed and cost associated with each. See Schedule 2.11© in the revised work plan.



- 3) **The equipment rental rates for the Pressure Transducers and the Hermit SE2000 must be supported by three responsive written or verbal quotes.**

Response: Only two vendors that Malcolm Pirnie is familiar with provide the type of equipment that is required. The cost estimate is slightly higher than the estimate from Instrumentation Northwest. However, Malcolm Pirnie normally uses In-Situ data logger and transducers and is confident in the data produced. Additional labor cost would be associated with Instrumentation Northwest.

Supporting documentation for these costs is provided in Appendix F of the Work Plan.

- 4) **Regarding the Professional service subcontract with Edward Watts, the following is needed:**

- a) **Three written quotes are needed for the \$6,750 surveying subcontract**
- b) **Three written quotes are needed for the submersible pump (\$4000) rental**
- c) **Specify what the \$1,950 shipping charge is for (\$75/day).**
- d) **If miscellaneous supplies are expected to run more than \$1,000, a detailed cost breakdown is needed.**
- e) **Nancy Potak's data validation subcontract expired in 8/95. Does Malcolm Pirnie intend to solicit bids for another round of standby data validators?**

Response: The response from Edward O. Watts, P.E is included in Appendix F to the Work Plan. A new standby contract with Nancy Potak was signed in 12/95 and is currently awaiting approval from NYSDEC program management.

**Comments from Sally Dewes dated January 2, 1996 and January 4, 1996.**

1. **Page 2-3. Regional data (McClymonds and Franke, 1972) shows the site to lie in an area with a transmissivity of about 200,000 gallons per day per foot. Was the transmissivity value presented in this section developed from drawdown data collected in the pumping well? If so the discrepancy between the regional value and the site specific value of 91,000 gpd/ft may be a result of well efficiency.**

Response: The transmissivity value presented in this section was obtained from information presented to Malcolm Pirnie by the Department and is from Observation Well 2 located on the site.

2. **Page 3-1. Please specify that the literature search will include locating public and private well supplies.**

Response: Addressed on Page 3-1 of the Work Plan.

3. **Page 3-3. When sampling surface soil, areas that have been obviously covered with fill should be avoided. If necessary and possible, deeper samples may be taken to sample undisturbed soil. Nine samples should be taken with one duplicate.**

Response: Addressed on page 3-3 of the Work Plan.

4. **Page 3-4. Discuss the selection of soil boring locations.**

Response: Addressed on Page 3-3 of the Work Plan.

5. **Page 3-5. Please list the analytical methods that will be used for the water quality parameters listed on this page: phosphate, silica, total organic carbon etc. Please explain why these parameters are necessary for the reverse osmosis (RO) analysis.**

Response: The analytical methods are provided on Table 3-1. The explanation is provided on Page 3-5 of the Work Plan.

6. **Page 3-7. When we discussed the work plan outline with Malcolm Pirnie (MP), it was agreed to skip the step drawdown test if data from earlier investigations could be substituted. There is no mention of attempting to obtain and interpret previous data in the work plan. This should be included.**

It was also agreed that the pretest water level monitoring would be cut from seven to four days. This has not been addressed. One justification MP uses for seven days of water level monitoring is that there is a sand mine and well near the site that may be affecting the study area. On Figure 1 of the Work Plan a gravel pit is shown ½ mile to the south-southeast of the site. A well in the Upper Glacial Aquifer that far away would have to produce massive amounts of water to cause significant interference in the aquifer test.

The proposed work plan does not address the production well that is within 20 feet of the recovery well RW-1. The well must be shut down during the test or taken into account. Please discuss.

Response: Addressed on Page 3-7 of the Work Plan.

7. **Page 3-16. The section regarding the feasibility study needs to be more specific. The detailed analysis of each alternative begins with a detailed description of the alternative. This description includes: a site plan; projected life of containment or treatment systems; supporting data from literature surveys; and a projection of the extent to which the alternative achieves the response objectives. If appropriate, modeling done to predict the performance of the alternative is included in this information. Present all of the above data followed by an evaluation of each alternative against the following seven criteria:**

- overall protection of human health and the environment
- compliance with State Standards, Criteria, and Guidance Values (SCGs)
- long-term effectiveness and performance
- short-term impacts and effectiveness
- reduction of toxicity, mobility, or volume
- implementability
- cost

Following the detailed evaluation of each alternative, the alternative will be compared with each other using the information collected and the factors described above. The evaluation will also consider the future operations at the site. For example, if the site is going to continue to operate it will be able to continue to recycle spent CCA solution. If, however, the site will shut down the recycling of CCA is not practical. These considerations must be made in the selection of a remedy. Particular attention will be paid to comparison of the effectiveness of each alternative with the relative cost of achieving the effectiveness for alternatives that achieve the same relative degree of protection of human health and the environment; lower cost alternatives will be considered over more expensive ones.

At the conclusion of the detailed analysis of the alternatives, MP will formulate a preferred alternate for each of the operable units discussed at the site. The results of all phases of the FS will then be combined in an FS report that documents the approach and methodology used to select the preferred alternative. The report will be prepared for NYSDEC to present for public comment.

MP will prepare a conceptual plan for implementation of the proposed remedy. This plan will include: a site plan; process flow diagrams; a proposed

**implementation schedule; equipment lists; and a cost estimate of the selected remedial alternative.**

Response: MP agrees with the comment, and will consider these points when preparing the FS. Additional detail is provided on Page 3-16 of the Work Plan.

**8. Table 3-1. Holding times - Change holding times\* to:**

Volatile (soil)	7 days
Volatile (aqueous)	7 days
Semi-volatile (soil)	5 days after VTSR extraction, 40 days analysis
Semi-volatile (aqueous)	5 days after VTSR extraction, 40 days analysis
TAL Metals (soil & aqueous)	6 months
Total Organic Carbon	26 days

\* Add that the holding times are from Verified Time of Sample Receipt (VTSR) at the laboratory. Samples must be received by the laboratory within 48 hours of sampling.

**Water quality parameters should be listed with methods and holding times from NYSDEC Analytical Services Protocol (ASP) '91 Rev.**

Response: The holding times were removed from Table 3-1. Holding times are now on Table 3-2. Water quality parameter methods were added to Table 3-1.

**9. A chart that defines for each analysis the type and size of sample bottle and sample preservation should be included in the work plan. (Volatile samples should be unpreserved.) This chart should also define the site-specific quality control (QC) samples planned for the project and include the necessary sample bottles (example: site-specific matrix spike, matrix spike duplicates require three bottles per analysis category). Field duplicates should also be accounted for in this chart. Note that field duplicates should be blind to the laboratory (i.e., given different sample IDs that are documented in field notes). Page 3-5 discusses filtered and unfiltered groundwater samples. This should also be clarified in the sampling and analysis chart, since it will affect the number of sample bottles needed.**

Response: Table 3-2 provides the sampling containers and preservation methods. QC samples have been added to Table 3-1.

10. Page 3-5, third paragraph- Change "The groundwater samples will be filed filtered prior to the addition of preservatives." to "The filtered set of groundwater samples for dissolved metals will be filed filtered prior to the addition of any preservatives."

Response: Addressed on Page 3-5 of the work plan.

11. Page 3-7, first paragraph- Change "The HydroPunch Samples will be field filtered prior to the addition of preservatives." to "The filtered set of HydroPunch Samples for dissolved metals will be filed filtered prior to the addition of any preservatives."

Response: Addressed on Page 3-7 of the work plan

12. Page 3-7, first paragraph - describes VO and SVO compound testing (volatile and semi-volatile analysis) on one HydroPunch borehole. This testing is not designated on Table 3-1. Please clarify.

Response: The testing described on page 3-7 has been added to Table 3-1.

13. Page 3-9, 3.3, first paragraph- Change "The ASP QA/QC package" to "The NYSDEC ASP Category B deliverables package."

Table 3-1 should also designate in a footnote that NYSDEC ASP Category B deliverables package is required.

Response: Addressed on Page 3-9 of the work plan and in Table 3-1.

14. Page 3-9, 3.3, third paragraph- Clarify that data validation will be performed by Nancy Potak in accordance with the EPA Functional Guidelines for Data Validation and the NYSDEC ASP '91 Rev. method quality control requirements.

Response: Addressed on Page 3-9 of the work plan

15. Appendix A, Page 10, 1.12- Add "Any deviations from the analytical protocols in this Work Plan must have prior approval by the NYSDEC Project Manager, Sally Dewes, or NYSDEC Quality Assurance Officer, Christine McGrath."

Response: Addressed on Page 11 of Appendix A.

16. **Appendix A, Page 10, 1.12- Add "The Malcolm Pirnie QAO is responsible for monitoring that the laboratory maintains NYSDOH ELAP CLP and general certification for the analysis required for this project."**

Response: Addressed on Page 11 of Appendix A.

17. **Page 5-1- Paul Werthman cannot be the Project Officer (QAO?) And Program Manager (see attached QAO guidelines). The attached duties of the QAO, as described in the QAO guidelines, must be incorporated into the duties of the QAO in the Work Plan.**

Response: Addressed on Page 5-1 of the Work Plan. Conrad Tuefel is designated as the QAO for this project.

18. **In the directions to the hospital, Item #2, the turn from Speonk-Riverhead Road to Rt. 27 cannot be made. Rt. 27 is a limited access road with no ramp at that intersection. Please revise.**

Response: Addressed on Page 2 of Attachment 2 to Appendix B.

19. **Standard Operation Procedure (SOP) C-3 for hollow stem augers. This SOP does not contain a contingency for running sand. It is recommended a sand bailer be used. If the sand inside the auger barrel is not cleared, the force of the hammer driving the spoon or punch will be transferred to the inside of the auger, as will the retracting force, causing sand lock. If the drillers attempts to over drill and shake the sand out, the split spoons will not provide representative samples. If the drillers suppress the running sand with water, the HydroPunch may not yield representative samples.**

Response: Addressed on SOP C-3 of Appendix C.

20. **SOP C-9. Although the water table is expected to be below 20 bgs, the procedures in paragraph 2.3 regarding pumping rate must be followed, i.e., pump from top, for not let the water drop below the screen, etc.**

Response: MP agrees with this statement and has modified SOP C-9 of Appendix C.

21. **The contact list should include *residents* in the area, not just property owners. The property owners that should be notified are the adjacent property owners, not all property owners in the vicinity of the site. Please include a map in the Citizens Participation (CP) Plan that outlines the area that the contact list**

**covers. Also, the residents on the mailing list should be referred to generically as "Resident" , not with their proper name (e.g. Mr. John Smith).**

Response: Malcolm Pirnie will revise the mailing list and submit it with the Citizen Participation Plan as a separate submittal to immediately follow the enclosed submittal.

- 22. The CP Plan mentions several tasks that BB&S will perform. BB&S will not be responsible for any of the CP items; either the NYSDEC or MP will be. For example, MP will help develop fact sheets associated with the site and mail them for the NYSDEC. Please remove all references to BB&S participating in the CP Plan.**

Response: All references to BB&S participating in the plan have been removed.

- 23. Page 1. One purpose of the CP Plan is to keep the public abreast of the activities at the site, including the investigation and remedial measures, through periodic activities such as public meetings and mailings. Please include this on this page.**

Response: Addressed on Page 1 of Appendix E.

- 24. Page 2. The third bullet on this page should refer to public *meetings*, not *availability sessions*. Please correct.**

Response: Addressed on Page 2 of Appendix E.

- 25. Page 4. The RI/FS Work Plan will also be approved in the winter of 1996. Please include that in the schedule.**

Response: Addressed on Page 4 of Appendix E.

- 26. Page 4. The technical contact person at the NYSDEC should be Sally Dewes only. Do not include Chris Magee's name in this document.**

Response: Addressed on Page 4 of Appendix E.

- 27. Page 5. "Community Affair" should be changed to "Citizen Participation."**

Response: Addressed on Page 5 of Appendix E.

28. **Page 6. It is stated on this page that there is a discussion of the major elements of the project and the CP activities for each element. There is no such discussion. Please discuss fact sheets, meetings, comment periods, etc. There is no discussion of MP's role in the public meetings. Please add this to the CP plan.**

Response: MP revised the CP plan to include this information. It is included in Section 3.5, starting on Page of Appendix E.

29. **In Section 3.6, there is a discussion of what will happen after the completion of the design. This part of the remediation is out of the scope of this work plan and must be removed. Section 3.7 is out of scope. The second bullet on p. 2 is also out of scope.**

Response: Section 3.6 and 3.7 and bullet 2 have been removed from the CP plan.

30. **Page 11. Please remove the reference to the NYSDEC toll-free "800" telephone number.**

Response: The reference was removed from page 11 as well as page 8.

31. **Attachment 1 must be checked for typos. As stated previously, the list should be mainly composed of residents, not property owners. Only property owners of parcels adjacent to the site should be on the list.**

Response: See response to Comment No. 21.

32. **The Department Personnel listed in Attachment 1 are redundant. Please only include Sally Dewes and Joshua Epstein on this list.**

Response: The names have been removed from the list.

33. **A list containing additional names for the mailing list will be sent under separate cover.**

Response: These names have been added to the list.

34. **The Department has determined that no money should be allotted for Task 4 at this time. Please remove the costs from the budget.**

Response: The costs have been removed from the schedule 2.11.



Additionally, the costs for Task 6 - Laboratory Audits have been removed from the project budget since we have been informed by Program Management that this is no longer a requirement of the Standby Analytical Subcontractor procurement process.

**Comments from January 4, 1996 letter.**

- 1. The pagination in the table of contents will need to be revised.**

Response: Malcolm Pirnie will update table of contents after corrections to the CP have been made.

- 2. Page 1. The last line, last paragraph should read; "To keep the public informed and involved regarding..."**

Response: Addressed on Page 1 of Appendix E.

- 3. Page 2. The second bullet should read; "Ensure that all fact-sheets, meeting notifications, and other informational materials are accurate and appropriately written."**

Response: Addressed on Page 2 of Appendix E.

- 4. The third bullet should read; Hold public meetings..."**

Response: Addressed on Page 2 of Appendix E.

- 5. Page 3. The last sentence should read; "...development and performance of a RI/FS, thus making this a state-lead site (see "Significant Elements of the Remedial Program" for definition of)."**

Response: Addressed on Page 2 of Appendix E.

- 6. Page 4. Under 2.1.1, the purpose is to present major technical milestones. The current draft mixes these with Citizen Participation. Rather, Citizen Participation (RI/FS Work Plan meeting, RI meeting, PRAP meeting, etc.) should be presented as part of specific citizen participation activities - see point 12.**

Response: Malcolm Pirnie will revise Section 2.1.1 to reflect technical milestones instead of citizen participation milestones.

**TABLE OF CONTENTS**

	<b>Page</b>
1.0 INTRODUCTION .....	1-1
1.1 PROJECT DESCRIPTION .....	1-1
1.2 PURPOSE AND OBJECTIVES .....	1-2
1.3 SCOPE .....	1-2
2.0 SITE CONDITIONS .....	2-1
2.1 BACKGROUND .....	2-1
2.2 SITE DESCRIPTION .....	2-1
2.3 GEOLOGIC SETTING .....	2-2
2.3.1 Regional Geology .....	2-2
2.3.2 Site Geology .....	2-3
2.4 HYDROGEOLOGIC SETTING .....	2-3
2.4.1 Regional Hydrogeology .....	2-3
2.4.2 Site Hydrogeology .....	2-3
3.0 SCOPE OF WORK .....	3-1
3.1 PRELIMINARY ACTIVITIES .....	3-1
3.1.1 Literature Search .....	3-1
3.1.2 Site Mapping .....	3-2
3.2 SITE CHARACTERIZATION .....	3-2
3.2.1 Soil Investigation .....	3-3
3.2.1.1 Surface Soil Sampling .....	3-3
3.2.1.2 Soil Boring Program .....	3-3
3.2.2 Groundwater Investigation .....	3-4
3.2.2.1 Well Rehabilitation & Development .....	3-4
3.2.2.2 Groundwater Sampling .....	3-5
3.2.2.3 HydroPunch Sampling .....	3-6
3.2.2.4 Aquifer Testing .....	3-7
3.3 DATA VALIDATION/USABILITY REPORT .....	3-9
3.4 INTERIM REMEDIAL MEASURE SCOPING .....	3-10
3.5 FISH AND WILDLIFE IMPACT ANALYSIS .....	3-10
3.6 HUMAN HEALTH RISK ASSESSMENT .....	3-11
3.7 REMEDIAL SYSTEM EVALUATION .....	3-14
3.8 PHASE II REMEDIAL INVESTIGATION .....	3-15
3.9 REMEDIAL INVESTIGATION REPORT .....	3-15
3.10 FEASIBILITY STUDY .....	3-16
4.0 PROJECT SCHEDULE .....	4-1

**TABLE OF CONTENTS (Continued)**

	<u>Page</u>
5.0 PROJECT ORGANIZATION .....	5-1
5.1 PROJECT TEAM .....	5-1
5.2 RESUMES .....	5-2
5.3 MINORITY/WOMEN BUSINESS ENTERPRISE (M/WBE) UTILIZATION PLAN .....	5-2
6.0 PROJECT COST .....	6-1

**LIST OF FIGURES**

<u>Figure No.</u>	<u>Description</u>	<u>Follows Page</u>
1	Site Location Map .....	1-1
2	Sample Location Map .....	3-3

**LIST OF TABLES**

<u>Table No.</u>	<u>Description</u>	<u>Follows Page</u>
3-1	Analytical Program .....	3-2
3-2	Sample Handling Procedures .....	3-2
4-1	Project Schedule .....	4-1

**TABLE OF CONTENTS (Continued)**

**LIST OF APPENDICES**

<b>Appendix No.</b>	<b>Description</b>
A	Quality Assurance Plan
B	Health and Safety Plan
C	Standard Operating Procedures
D	Minority/Women Business Enterprise Utilization Plan
E	Citizens Participation Plan
F	Schedule 2.11 Backup

## **1.0 INTRODUCTION**

### **1.1 PROJECT DESCRIPTION**

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The New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, has assigned to Malcolm Pirnie, Inc. (Work Assignment #D002852-15) a Remedial Investigation/Feasibility Study (RI/FS) at the BB&S Treated Lumber Corporation (Site No. 1-52-123), Speonk-Riverhead Road, Town of Speonk, Long Island, New York (Figure 1). The BB&S Treated Lumber Corporation is an active lumber preserving facility that has been in operation for over 12 years. The treatment procedure uses chromate copper arsenate (CCA) as a wood preservative. Discharges of CCA to the ground have contaminated the groundwater in excess of drinking water standards for arsenic (detected at concentration greater than 1,200 parts per billion) and total chromium (detected at concentrations greater than 11,000 parts per billion).

Malcolm Pirnie has prepared this Remedial Investigation/Feasibility Study (RI/FS) Work Plan based upon information provided in the NYSDEC Work Assignment dated September 29, 1995; site visits on October 16 and 26, 1995; and the October 25, 1995 scoping session between NYSDEC and Malcolm Pirnie.

This Work Plan is organized as follows: Section 2 presents a site description including the site history and geology, Section 3 contains the Proposed Scope and describes the major tasks and subtasks that will be completed; Section 4 presents the preliminary estimate of the Work Assignment progress schedule, including milestones and deliverables for the RI/FS; Section 5 provides the Project Staffing Plan, which identifies key management and technical staff members and a listing of their areas of responsibility; and, Section 6 presents the project cost estimate. The Work Plan also includes a Quality Assurance Plan (QAPP - Appendix A), a Health and Safety Plan (HASP - Appendix B), Malcolm Pirnie Inc.'s Standard Operating Procedures (SOP's - Appendix C), a M/WBE Utilization Plan (Appendix D), and a Citizen's Participation Plan (Appendix E).



## **1.2 PURPOSE AND OBJECTIVES**

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This Work Plan provides background information on the BB&S Treated Lumber Site, and defines the level of effort and specific activities to be performed as part of the RI/FS. Its purpose is to describe the proposed work in sufficient detail to ensure that the RI/FS is conducted in accordance with NYSDEC guidelines and meets the Agency's objectives. The Work Plan also identifies the health and safety requirements (See Appendix B) for on-site personnel and quality assurance/quality control (See Appendix A) procedures which ensure the gathering of representative and usable data.

The overall objective of the work is to determine the horizontal and vertical extent of soil and groundwater contamination to provide adequate, reliable data for the evaluation of potential remedial technologies. First, historical research will be conducted to formulate a conceptual model of the distribution and migration of site contaminants. Second, RI field work will be conducted to fill data gaps in the existing site characteristics data. Third, an Engineering Evaluation of the existing RO system will be conducted to evaluate the effectiveness of this system in remediating the site. An engineering Feasibility Study will then be performed to evaluate potentially applicable alternative technologies.

## **1.3 SCOPE**

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The scope of this work plan includes the following major components:

- **Remedial Investigation/Feasibility Plan** which describes proposed field and investigation activities, sampling and analytical procedures, as well as site mapping and supplemental historical data review.
- **Project Schedule** which identifies both the major milestones to be completed during the conduct of the RI/FS and estimates of the time required to perform project tasks.
- **Project Organization** which identifies the project team members and the proposed responsibility of each team member.

- **Quality Assurance Plans** which presents the policies, objectives, functional activities, and specific QA and QC activities that will be implemented to assure the quality and validity of data generated during the RI/FS. The Quality Assurance Plan is presented in Appendix A of this work plan.
- **Health and Safety Plan** which addresses site-specific considerations for both on-site personnel conducting the RI/FS as well as the community, including potential on-site hazards, decontamination procedures, and emergency procedures. The Health and Safety Plan is presented in Appendix B of this work plan.
- **M/WBE Utilization Plan** which identifies the subtasks to be completed by minority businesses. The M/WBE Utilization Plan is presented in Appendix D of this work plan.
- **Citizens Participation Plan** which identifies the repositories for site-specific information available for public review. In addition, it provides a list of interested parties and background information for these parties as well as the key points during the project at which public input will be solicited. The Citizen's Participation Plan is presented in Appendix E of this Work Plan.



## **2.0 SITE CONDITIONS**

### **2.1 BACKGROUND**

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In April of 1985, the Suffolk County Department of Health Services (SCDHS) collected groundwater samples from supply wells located at the BB&S Treated Lumber Site. Analytical results indicated exceedances of the New York State Drinking Water Standards for arsenic and chromium. Arsenic was detected in the groundwater samples at concentrations greater than 1,200 parts per billion (ppb) and chromium was present in the groundwater samples at concentrations greater than 11,000 ppb. The facility hired an environmental consulting firm to investigate and remediate the site. A groundwater collection system with a reverse osmosis (RO) treatment system was designed and installed. A SPDES permit for the discharge of treated groundwater was issued in May 1988. However, according to the NYSDEC Division of Water's files, the pumping and treatment system never worked effectively and has consistently failed to meet the effluent limitations set forth in the SPDES permit. Efforts were made by the SCDHS and the NYSDEC Division of Water and Division of Hazardous Waste Remediation to engage BB&S into consent orders. However, the site was ultimately referred for a State Superfund RI/FS in July, 1995. On September 29, 1995, State Superfund Standby Contract Work Assignment #D002852-15 was submitted to Malcolm Pirnie requesting the development and performance of a Remedial Investigation/Feasibility Study (RI/FS).

### **2.2 SITE DESCRIPTION**

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The BB&S Treated Lumber Corporation is an active lumber preserving facility that has been in operation for over 12 years. The 10-acre site is located in Suffolk County on Speonk-Riverhead Road. The facility pressure treats lumber with CCA. As a result of this process, releases of CCA compounds to the environment have occurred. The first area where these compounds are believed to have entered the soil and groundwater is from concrete

sumps located within the process building which collect excess preservative from the treatment area. The second area is the drip area where lumber is stacked after treatment until dry.

The BB&S Site is located in the Pine Barren Region of Southern Suffolk County, Long Island, New York. The Site is bordered to the north, south and east by open pine forests. The property located across Speonk-Riverhead Road to the west is occupied by the Speonk Sand and Gravel Company.

With the exception of a small paved parking lot located along Speonk-Riverhead Road and the concrete drip area, the Site is unpaved sand and gravel. A framed building is used for office space and also houses the wood treatment process and the groundwater treatment system. The remainder of the site is used for the storage of both treated and untreated lumber.

## **2.3 GEOLOGIC SETTING**

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### **2.3.1 Regional Geology**

The Pine Barren Region is underlain by unconsolidated deposits that rest unconformably on the Precambrian basement complex. The depth to bedrock increases southward from approximately 900 feet on the north shore to 1,500 feet below sea level on the barrier islands. The bedrock is overlain by the Raritan Formation, which consists of the Lloyd Sand Member (approximately 300 feet thick) and an overlying unnamed clay member (approximately 200 feet thick). The Matawan Group and Magothy Formation, undifferentiated (Magothy), overlies the Raritan Formation, and ranges in thickness from 100 feet at the north shore to more than 900 feet near the south shore. The Monmouth Group disconformably overlies the Magothy. The Monmouth Group is a marine deposit that occurs primarily in southern Suffolk County and ranges in thickness from 0 to 200 feet. The surficial geologic units consist of Pleistocene outwash and marine deposits such as the Gardiners Clay. The Upper Glacial Aquifer, which is the focus of this RI/FS, is located in these Pleistocene outwash deposits.

### **2.3.2 Site Geology**

Observation well geologic logs indicate that the Site is underlain by fine to coarse grained sand and gravel with quartz pebbles from grade to at least 80 feet below grade (deepest observation well penetration). No other on-site information is available at this time.

## **2.4 HYDROGEOLOGIC SETTING**

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### **2.4.1 Regional Hydrogeology**

The Pine Barrens Region is bisected by a major groundwater divide that traverses Long Island from west to east and splits north of the Site into a north branch extending into the north fork and a south branch extending into the south fork. Groundwater in the Upper Glacial Aquifer north of the divide flows northward to Long Island Sound, and groundwater south of the divide flows southward to Great South Bay and Moriches Bay. The hydraulic gradient of the Upper Glacial Aquifer south of the divide is approximately .001 feet/foot to the south.

The Upper Glacial Aquifer and the underlying Magothy Aquifer (where the site is located) are separated along the south shore by the Gardiners Clay. Where present, this clay confines water in the Magothy and limits communication between the two units.

### **2.4.2 Site Hydrogeology**

Historical pumping test data from Observation Well 2 located on the site indicates a specific capacity of 57.5 gallons per minute per foot of drawdown and a transmissivity of 91,000 gallons per day per foot. The groundwater flow direction beneath the Site is approximately to the south. No other information is available or reliable at this time.

## **3.0 SCOPE OF WORK**

### **3.1 PRELIMINARY ACTIVITIES**

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The major subtasks and elements associated with the RI/FS are summarized below and are described in detail within this section.

- Literature Search and Site History
- Site Mapping
- Soil Investigation
- Groundwater Investigation
- Aquifer Testing
- Data Validation/Usability Report
- Interim Remedial Measures Scoping
- Fish and Wildlife Impact Analysis
- Human Health Risk Assessment
- Remedial System Evaluation
- Phase II Remedial Investigation
- Remedial Investigation Report
- Feasibility Study Report

#### **3.1.1 Literature Search**

The purpose of this subtask is to improve the understanding of the site relative to the environmental conditions detected during previous investigations. A detailed review of the NYSDEC's site file and available drawings will be made to further develop the site's history. Historical aerial photographs, as available, will be obtained and reviewed. If available, copies of the actual photographs will be supplied to the NYSDEC. Information from the Suffolk County Health Department will also be reviewed to obtain relevant site information. A survey will be conducted during the literature search to locate public and private supply wells within a three mile radius from the site. The literature search will include obtaining and reviewing existing information on the existing groundwater extraction system.

Further development of the site history will serve to increase our understanding of the timing and mechanisms of contaminant releases into the environment.

### **3.1.2 Site Mapping**

Site mapping will include the preparation of a photogrammetric site map and on-site survey of new sampling locations. A commercially available aerial photograph of the site will be used to develop the base map. The Professional Services Subcontractor will perform a ground control survey and a base map will be prepared in AutoCADD v.12 format at a scale of 1 inch equals 50 feet with a topographic contour interval of 2 feet. Sample locations, analytical results will be surveyed and added to the map. Data in the file will be manually verified.

Our preliminary estimate of the map area is 20 acres, which includes adjacent areas to assist with the hydrogeologic interpretation. This includes the property located to the south of the subject site and the property located west of the subject property, across Speonk-Riverhead Road. The boundaries of the site map will be specified while the investigation is in progress, so that the map limits can reflect new information on the extent of contamination.

## **3.2 SITE CHARACTERIZATION**

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A soil and groundwater investigation will be conducted as part of the RI field activities. The soil investigation will consist of the collection and laboratory analysis of surface and subsurface soil samples. The groundwater investigation will consist of the collection and laboratory analysis of groundwater samples from newly drilled boreholes and existing monitoring wells. The groundwater investigation will also include measurement of water level and aquifer tests to evaluate the hydrologic characteristics of the Upper Glacial (water table) Aquifer. The specifics of each of these investigations is described in Sections 3.2.1 and 3.2.2 below.

The site characterization will be performed in strict conformance with the QAPP, HASP, and SOPs, provided in Appendices A, B, and C, respectively. A summary of the Analytical Program is presented in Tables 3-1 and 3-2. Soil and groundwater samples will be submitted to the following laboratory for chemical analysis:

**Table 3-1**  
**BB&S Treated Lumber Superfund Site**  
**Analytical Program**

Blind Duplicates	Field Event	Number of Samples						MS/MSD
		Matrix	Volatile Method 91-1	Semivolatile Method 91-2	TAL Metals <sup>1,4</sup>	Water Quality Parameters <sup>3</sup>	Hexavalent Chromium Method 218.4	
1	Surface Soil Sampling	Soil	0	0	9	0	9	0
3	Borings	Soil	12	12	54	0	54	1
0	Hydropunch Sampling <sup>1</sup>	Water	3	3	36	0	36	0
4 <sup>2</sup>	Round 1 Groundwater Sampling <sup>2</sup>	Water	2	2	44	11	44	1
4 <sup>2</sup>	Round 2 Groundwater Sampling <sup>2</sup>	Water	0	0	44	0	44	1

**Notes:**

<sup>1</sup> NYSDEC ASP Category B deliverables package is required.

<sup>2</sup> Includes a filtered and an unfiltered water sample.

<sup>3</sup> Water Quality Parameters include hardness (Method 130.2), phosphate (Method 365.2), silica (Method 370.1), total organic carbon (Method 415.1), strontium (Method 7780), ammonia (Method 350.2), alkalinity (Method 310.1), nitrate (Method 352.1), sulfate (Method 375.4), chloride (Method 325.3), and fluoride (Method 340.2).

<sup>4</sup> Superfund CLP Inorganics (NYSDEC-ASP 12/91 D-V-1 through D-V-149).

Reference: NYS Analytical Services Protocol, December 1991

<p><b>Table 3-2</b>  <b>BB&amp;S Treated Lumber Superfund Site</b>  <b>Sample Handling Procedures</b></p>				
<b>Parameter</b>	<b>Matrix</b>	<b>Holding Times</b>	<b>Preservation</b>	<b>Sample Container</b>
Volatile Organic	Soil	7 days	Cool to 4°C	2-40 ml glass vials w/Teflon lined septum.
	Water	7 days	Cool to 4°C	2-40 ml glass vials w/Teflon lined septum
Semi-Volatile Organic	Soil	Extraction 5 days VTSR-40 days analysis.	Cool to 4°C	8 oz. lined jar with Teflon-lined cap.
	Water	Extraction 5 days VTSR-40 days analysis.	Cool to 4°C	2 liter amber jar with Teflon-lined cap.
TAL Metals	Soil	Mercury 26 days 6 months	Cool to 4°C	8 oz. glass jar with Teflon-lined cap.
	Water	6 months	Cool to 4°C HNO <sub>3</sub> to pH < 2	500 ml polyethylene bottle.
Hexavalent Chromium	Soil	24 hours	Cool to 4°C	8 oz. glass jar.
	Water	24 hours	Cool to 4°C	500 ml polyethylene bottle.
Hardness	Water	6 months	Cool to 4°C HNO <sub>3</sub> to pH < 2	500 ml. polyethylene bottle.
	Water	14 days	Cool to 4°C	500 ml. polyethylene bottle.
Alkalinity	Water	48 hours	Cool to 4°C H <sub>2</sub> SO <sub>4</sub> to pH < 2	50 ml. polyethylene bottle.
	Water	6 months	None	500 ml. polyethylene bottle.
TOC	Water	26 hours	Cool to 4°C	50 ml. polyethylene bottle.

**Table 3-2**  
**BB&S Treated Lumber Superfund Site**

*Sample Handling Procedures*

Parameter	Matrix	Holding Times	Preservation	Sample Container
Strontium	Water	6 months	Cool to 4 °C HNO <sub>3</sub> to pH <2	500 ml. polyethylene bottle.
Ammonia	Water	28 days	Cool to 4 °C H <sub>2</sub> SO <sub>4</sub> to pH <2	500 ml. polyethylene bottle.
Nitrate	Water	48 hours	Cool to 4 °C	100 ml. polyethylene bottle.
Sulfate	Water	28 days	Cool to 4 °C	50 ml. polyethylene bottle.
Chloride	Water	28 days	None	50 ml. polyethylene bottle.
Fluoride	Water	28 days	None	500 ml. polyethylene bottle.

<sup>1</sup> Holding times are from verified time of sample receipt (VTSR) at the laboratory. Hexavalent Chromium samples must be received by the laboratory within 24 hours of sampling. All other samples must be received within 48 hours of sampling.



### **3.2.1 Soil Investigation**

The soil investigation will focus on surface and subsurface soil sample collection and analyses. The proposed locations of all soil samples are shown on Figure 2. Malcolm Pirnie will utilize one of our standby contractors (SJB Services) to perform the drilling using a CME-85 drill rig. The scope for each sampling methodology is described below.

#### **3.2.1.1 Surface Soil Sampling**

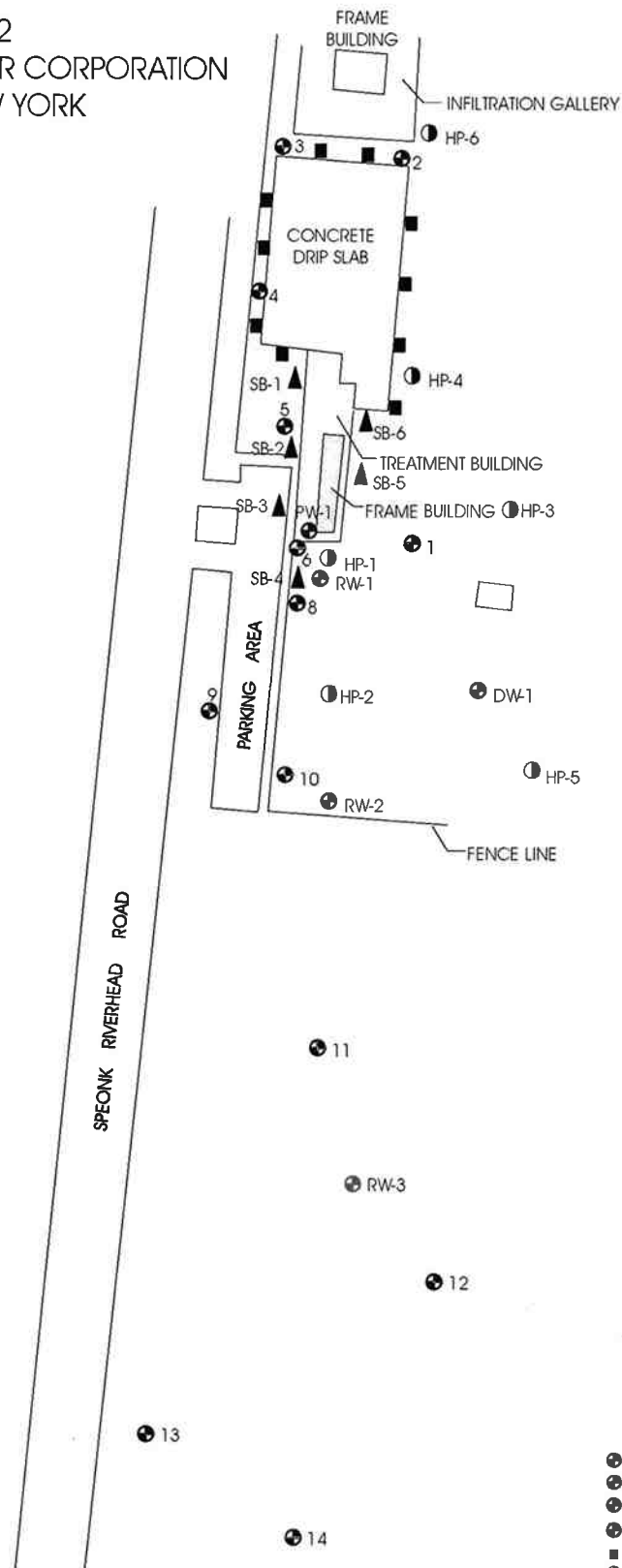
Ten surface soil samples (including one duplicate sample) will be collected from areas near suspected source areas such as the drip pad and drying areas. One additional soil sample will be collected from a non-impacted area to provide background information. The proposed sample locations are presented on Figure 2. However, the final sample locations will be determined by the NYSDEC.

The surface soil samples will be collected 0 to 3 inches below the ground surface, vegetative cover, or pavement. Locations that have obviously been recently covered with fill or otherwise disturbed will be avoided. The surface soil samples will be collected using dedicated, decontaminated stainless steel trowels. Each of the surface soil samples will be submitted for metals analysis including hexavalent chromium.

#### **3.2.1.2 Soil Boring Program**

Six soil borings will be drilled extending from the ground surface to the water table (the depth to groundwater is reported to be approximately 40 feet below grade). The soil borings will be located adjacent to the treatment building (Figure 2) since a leaking sump located inside the treatment building is the suspected source of contamination. Two-inch diameter split spoon soil samples will be collected every 5 feet from each of the boreholes and three duplicate samples will also be collected (9 samples from each boring plus 3 duplicate samples for a total of 57 samples). In addition, one matrix spike/matrix spike duplicate QC sample will be collected. The split spoons will be properly decontaminated

FIGURE 2  
B.B. & S. TREATED LUMBER CORPORATION  
SPEONK, NEW YORK



SOURCE:  
GROUNDWATER TECHNOLOGY, INC.  
GENERAL TREATMENT SYSTEM LAYOUT  
SCALE IS APPROXIMATE

- NOTES:
- RW-1 RECOVERY WELL
  - 11 MONITORING WELL (NO.)
  - DW-1 DRINKING WATER WELL
  - PW-1 PRODUCTION WELL
  - SURFACE SOIL SAMPLE LOCATION
  - HP-1 HYDROPUNCH LOCATION
  - ▲ SB-1 SOIL BORING LOCATION

between sample collection (see Appendix C). The split spoon soil samples will be collected following the protocol stipulated in ASTM 1586-84. Soil sampling procedures are discussed in detail in Appendix C. A Malcolm Pirnie geologist will field screen each soil sample for volatile organic compounds using an HNu photoionization detector. The split spoon soil samples will be logged by a Malcolm Pirnie geologist using the Unified Soil Classification System (USCS) and back-filled to the surface with cement bentonite grout after sampling.

Each of the 57 soil samples will be submitted for metals analysis including hexavalent chromium. In addition, two soil samples from each borehole plus one duplicate will be submitted for volatile organic (VO) and semivolatile organic (SVO) analysis. The soil samples submitted for VO and SVO analyses will be selected based upon the results of the field screening.

### **3.2.2 Groundwater Investigation**

The groundwater investigation will focus on the physical and chemical analysis of the shallow aquifer beneath the site. The field methodologies to be followed are described below. Malcolm Pirnie will utilize one of our Standby Contractors (SJB Services) to perform the drilling using a CME-85 drill rig.

#### **3.2.2.1 Well Rehabilitation and Development**

The surficial condition of the 22 existing wells located throughout the site will be inspected. Repairs, such as: patching or replacement of the concrete apron, repair or replacement of the protective steel casing, or replacement of the lock and/or locking cap, will be completed as necessary during the Remedial Investigation field work to facilitate groundwater sampling. Rehabilitation efforts such as replacement of the well screen or casing or evacuation of accumulated sediment will not be performed without NYSDEC authorization.

Upon completion of the repairs, each well which can be rehabilitated will be redeveloped using a decontaminated submersible pump and dedicated discharge hose. Each well will be developed for 1 hour or until the turbidity of the groundwater discharge is 50 nephelometric turbidity units (NTU), whichever occurs first.

### **3.2.2.2 Groundwater Sampling**

Groundwater samples will be collected from each of the 22 existing wells, a minimum of 2 weeks after the completion of the well redevelopment. Prior to the collection of groundwater samples, a synoptic round of groundwater level measurements will be obtained from all wells in a window from two hours before and after high tide to minimize any effect from tidal fluctuations.

A minimum of 3 to 5 times the standing water volume in each well will be evacuated prior to groundwater sample collection. Well evacuation will be accomplished using a 2-inch or 4-inch diameter submersible pump. The pump and electric cable will be properly decontaminated between wells and dedicated discharge hose will be used. Groundwater samples will be collected when 90 percent of the drawdown has recovered or within 2 hours, whichever occurs first.

Dedicated, disposable polyethylene bailers will be used to collect the samples. All groundwater samples will be submitted to EEI for both filtered and unfiltered metals analyses. The filtered set of groundwater samples for dissolved metals will be field filtered prior to the addition of preservatives. In addition, two duplicate groundwater samples (filtered and unfiltered) will be collected. The groundwater samples collected from the production well and drinking water well will be analyzed for the full target compound list (TCL). Each sample will also be field tested for temperature, specific conductance, pH, and dissolved oxygen. Eleven groundwater samples will also be analyzed for water quality parameters, (hardness, phosphate, silica, total organic carbon, strontium, ammonia, alkalinity, nitrite, sulfate, chloride, and fluoride). The water quality analyses will be performed on groundwater samples collected from monitoring wells located throughout the site to provide maximum coverage. As water passes through reverse osmosis membranes, cations and anions present in the water are concentrated. This changes the chemistry and increases the possibility that one of the cations or anions will reach saturation and precipitate out. Establishing the concentration of these water quality parameters will determine which ion will precipitate first, and thus limit the operating conditions and types of membranes that will be used.

As stipulated in the work assignment, an additional round of groundwater samples and groundwater level measurements will be obtained approximately 3 to 4 months after the first round. The constituents to be analyzed will be selected based upon the results from the first round of sampling and will be determined by the NYSDEC. However, it is assumed for the purpose of developing a project budget that samples will be collected from each of the 22 wells, plus 2 duplicate samples, and analyzed for filtered and unfiltered metals including hexavalent chromium.

### **3.2.2.3 HydroPunch Sampling**

The vertical extent of metal contamination in groundwater will be evaluated by advancing HydroPunch probes in up to 6 boreholes with estimated completion depth of 80 to 100 feet. Location of boreholes will be based upon results of Round 1 groundwater sampling.

Initially, at each location, a borehole will be drilled to the depth of the water table. Nominal 4-inch inside diameter hollow stem augers will be used to drill the borehole. Once the water table has been reached, a HydroPunch probe will be pushed and/or driven into undisturbed soil through the hollow stem auger to a depth approximately 10 feet beneath the augers. After the HydroPunch has been driven, it will be checked with an electronic water meter to determine if the punch is dry. If dry a dedicated, disposable polyethylene bailer will then be lowered to the bottom of the HydroPunch probe and an electronic water level measurement probe will be placed immediately above the top of the bailer. If dry, a dedicated, disposable polyethylene bailer will then be lowered to the bottom of the HydroPunch probe and an electronic water level measurement probe will be placed immediately above the top of the bailer. The outer casing of the HydroPunch probe will be retracted exposing the screen and allowing groundwater to enter the HydroPunch tool and fill the bailer. When the audible signal on the water level meter sounds, the full bailer will be removed from the HydroPunch tool. This method will assure that the first water to enter the borehole (i.e. the groundwater from that discrete zone) is collected for laboratory analysis. If water is detected in the punch, the HydroPunch will be withdrawn, cleaned, reassembled and re-driven to ensure the sample is representative of the formation water

quality at the intended sample depth. This procedure will be repeated every 20 feet until the Gardiners Clay is encountered or the borehole is advanced to a depth where hollow stem auger drilling is at refusal.

The HydroPunch samples will be submitted to EEI for analysis of both filtered and unfiltered metals including hexavalent chromium. The filtered set of HydroPunch samples for dissolved metals will be field filtered prior to the addition of any preservatives. The samples from each HydroPunch probe will be analyzed in order of depth. If two adjacent groundwater samples are below (or very close) to applicable NYSDEC groundwater standards, the deeper samples will not be analyzed. The HydroPunch samples collected from the borehole located closest to the plant supply well will also be tested for VO and SVO compounds. As discussed with the NYSDEC during the October 25, 1995 Scoping Session, data obtained from the HydroPunch samples will be used as a preliminary screening tool to evaluate the need for deep monitoring wells as part of a Phase II RI.

#### **3.2.2.4 Aquifer Testing**

In order to evaluate the physical characteristics of the Upper Glacial Aquifer, aquifer testing will be necessary. If aquifer testing was preformed prior to the design of the existing groundwater collection system, and that data can be made available; Malcolm Pirnie will review the raw data and attempt to establish the validity of the data collection effort. If the data is considered valid, Malcolm Pirnie will interpret that data to establish the aquifer characteristics. If either the data is not available or is considered inadequate, then three types of aquifer test will be performed using the existing recovery wells. In chronological order, the tests are:

- Step-drawdown tests.
- Constant rate test.
- Recovery test.

To assist in the interpretation of the pumping test data, continuous background groundwater level measurements will be collected for four days prior to initiating the aquifer tests. This period of background measurements will be used to characterize and quantify any

long term trends and possible water level fluctuations due to tidal effects or off-site pumping (possibly by the adjacent sand and gravel company). Any on-site wells which could affect the aquifer testing will be shut off during the period of the testing, or if this is not possible, will be accounted for in the water level measurement. The aquifer pumping test data will then be corrected for these fluctuations. An automated data acquisition unit (In-situ Hermit SE2000) connected to pressure transducers will be installed in up to 10 wells to monitor water levels. The numbers and locations of the wells will be determined based upon information generated from earlier investigations.

Step-drawdown pumping tests will be performed on each of the three recovery wells. The tests will begin at the conclusion of the background water level measurement program. Each test will ideally consist of 4 to 5 steps at successively increased pumping rates. Each step will involve approximately one hour of pumping, although the actual length will be determined based upon the aquifer response. Continuous water level measurements will be obtained manually and with the data acquisition unit. The data generated from the step-drawdown tests will be used to estimate the optimum pumping rate for the constant rate test. The step-drawdown test data will also be used to estimate the aquifer transmissivity and specific capacity of the well.

A constant rate pumping test will follow the step-drawdown test once the water levels have recovered. The constant rate test will consist of pumping recovery wells RW-1 and RW-2, simultaneously, at constant rates (determined from the analysis of the step-drawdown test data) for a maximum of 72 hours. The third recovery well, RW-3, located on the adjacent property, will not be included in the constant rate test because the effects of pumping it for 72 hours may enhance the transport of contaminated groundwater toward the well, into areas previously uncontaminated. The test may be terminated prior to 72 hours if the groundwater levels stabilize in the pumping well and observation wells. Stabilization will be defined as fluctuations in water level smaller than those observed during the background measurements. Pressure transducers will be placed in ten wells, including the recovery wells, and drawdown measurements will be obtained using the Hermit. Manual groundwater level measurements will be obtained from the remaining on-site monitoring

wells. The constant rate test data will be used to estimate aquifer parameters such as the transmissivity and storage coefficient, radius of influence, and capture zone.

Immediately following the conclusion of the constant rate test, the pump will be shut off and the rate of water level recovery in the pumping well and observation wells will continue to be recorded both manually and automatically. The recovery test will be deemed complete when 90 percent of the drawdown in the pumping well and the observation wells has recovered.

Discharged groundwater generated during the aquifer tests will be piped to the treatment system and disposed on-site using the existing infiltration gallery.

### **3.3 REMEDIAL INVESTIGATION FIELD REPORT**

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All environmental samples collected as part of the RI will be submitted to EEI for analysis. Analytical Quality Assurance/Quality Control (QA/QC) procedures will follow the December, 1991 Analytical Services Protocol (ASP). The data validation program will verify that the analytical results were obtained following the specified protocols and are of sufficient quality to be relied upon for use in the risk assessment, for selecting potential remedial action alternatives and for use in litigation, if needed. The NYSDEC ASP Category B deliverables package will be checked to assure that holding times were met, equipment calibration and tuning criteria were achieved, spikes and duplicates were within required ranges, and that other laboratory standard operating procedures met compliance requirements.

The data validation will be performed by Nancy Potak, a standby WBE firm in accordance with the USEPA Functional Guidelines for Data Validation and the NYSDEC ASP 1991 Rev. method quality control requirements. The data validation will be incorporated as part of a preliminary data report, which will be submitted to the NYSDEC prior to the first draft of the Remedial Investigation Report.

This report will also present and document:



- Sample locations, dates, collection procedures, and observations during field activities.
- Problems encountered while performing the work and actions taken to rectify those problems.
- Modifications to the approved Work Plan and why they were required.
- All detailed analytical results.
- Hydrogeologic data interpretation.

### **3.4 INTERIM REMEDIAL MEASURE SCOPING**

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The need for and potential application of Interim Remedial Measures (IRMs) to reduce the threat to public health or the environment posed by the site will be evaluated based on the analytical results generated from the groundwater and soil sampling program, the test results acquired from the aquifer pumping test, and the overall review of the existing pumping and RO treatment system and discussed with NYSDEC. Potential Interim Remedial Measures which could be considered include evaluation of the efficacy of alternative pumping scenarios, retrofitting the existing treatment system, or purchase of a packaged treatment unit.

### **3.5 FISH AND WILDLIFE IMPACT ANALYSIS**

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A baseline ecological risk assessment will be conducted in accordance with New York State guidance (*Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites*, NYSDEC, October 1994). The scope under this task will be the completion of Step 1 through 2B of this guidance which includes:

A description of the major terrestrial, wetland, and aquatic habitats within a 0.5-mile radius of the site and creation of cover type map.

- A description of fauna expected within each cover type.

- Observations of stress potential related to constituents detected on-site.
- An assessment of the value of the habitats to associated fauna and to humans.
- Identification of and comparison to readily available criteria applicable to the remediation of fish and wildlife resources.
- A pathways analysis which identifies contaminants of concern and pathways of contaminant migration to ecological receptors.

### **3.6 HUMAN HEALTH RISK ASSESSMENT**

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A baseline human health evaluation will be conducted to characterize the health risks associated with contamination that would prevail, currently and in the future in the absence of additional remedial action beyond the reverse osmosis groundwater treatment unit. The risk assessment will follow guidance contained in the following USEPA documents:

*Guidance for Data Usability in Risk Assessments.* (EPA/540/6-90/008, October 1990);

*Risk Assessment Guidance for Superfund (RAGS), Volume I. - Human Health Evaluation Manual* (EPA/540/1-89/001, March 1989);

*Superfund Exposure Assessment Manual.* (EPA/540/1-88/001, April 1988);

*Exposure Factors Handbook.* (EPA/600/8-89/043, March 1989);

U.S. Environmental Protection Agency. 1992. *Dermal Exposure Assessment: Principles and Applications.* Interim Report. EPA/600/8-91/011B. Washington, D.C.: Office of Research and Development; and

U.S. Environmental Protection Agency. 1991. *Risk Assessment Guidance for Superfund, Volume I: Human Health. Supplemental Guidance "Standard Default Exposure Factors".* Interim Final. OWSER Directive: 9285.6-03. Washington, DC: Office of Emergency and Remedial Response.

The primary suspected source at the BB&S site is a crack in the sump located in the CCA process building. Groundwater in this area is of chief concern since the system is a sole-source aquifer.

Several actual or potential human exposure routes currently exist or may exist in the future at the site. These include: direct exposure via ingestion of and dermal contact with contaminants in soils and groundwater. The current potential human receptor population include residents, site trespassers, and site workers. Potential human receptor population in the future could include construction/utility workers. The conceptual site model, which forms the basis for the risk assessment, will be developed as data are obtained.

The risk assessment will comprise the following components:

*Data Evaluation:* Chemical contamination detected in all environmental media during the remedial investigation will be evaluated for selection for detailed analysis. Medium-specific chemicals of concern will be selected on the basis of frequency of detection (i.e., in greater than 5 percent of the samples, with a sample size of 20 or more), comparison to background levels, and comparison to New York Criteria protective of human health. All contaminants present at the site will be carried through the risk assessment process unless there is clear justification for their omission. The chemicals of concern, which will be representative of the types of contamination present at the site, will be evaluated quantitatively in the subsequent evaluations of human health risk. The risks associated with potentially cancer-causing and noncarcinogenic chemicals will be assessed.

*Fate and Transport:* The environmental fate and transport of the chemicals of concern will be reviewed. The review will include physical, chemical and biological fate and transport mechanisms. The occurrence of, or potential for, present or future off-site migration of hazardous wastes/substances will be addressed.

*Exposure Assessment:* Exposure assessments will be conducted to identify actual or potential pathways of all relevant human exposure, characterize potentially exposed human populations, and where possible, quantify the exposure of affected populations. Actual or potential exposure pathways, identified by a source and mechanism of chemical release, and environmental transport medium, a point of potential contact and an exposure route will be evaluated in the exposure assessment. All potential exposure pathways will be

identified and a rationale will be provided for inclusion or exclusion of each pathway in the baseline health risk assessment. An inventory of groundwater uses in the vicinity of the site will be conducted; this information will be factored into the rationale for inclusion or exclusion of a pathway in the risk assessment.

Potentially exposed populations will be characterized with the intent of determining whether there is potential for casual contact or intake of the chemicals. The characterization will include identification of human activity patterns which may influence exposure. All parameters and assumptions will be documented, where possible, by reference to the scientific literature.

*Toxicity Assessment:* Critical evaluation and interpretation of toxicological data for the chemicals of concern will be provided. The intent is to indicate the intrinsic toxicity of the chemical, i.e., the ability to pose potential hazards to human health. Sources of toxicological information include Integrated Risk Information System (IRIS), which is a USEPA database current health risk and regulatory information for many chemicals and Health Effects Assessment Effects Summary Tables (HEAST) which are tabular presentations of toxicity data. The toxicological profiles prepared by the Agency for Toxic Substances and Disease Registry (ATSDR), which contain general and toxicity information and levels of exposure associated with lethality, cancer, genotoxicity, and others, will also be consulted. For potentially cancer-causing chemicals, the evidence supporting such a classification will be noted and the derivation of the carcinogenicity potency estimates will be summarized. Human health-based criteria, such as verified reference doses (RfDs) and slope factors for carcinogenic chemicals will be tabulated, as appropriate, for subsequent risk characterization.

*Risk Characterization:* Information from the toxicity assessment and the exposure assessment will be integrated in this step to determine the likelihood, nature and magnitude of adverse human health effects posed by off-site contamination. The risk characterization will include an evaluation of carcinogenic and noncarcinogenic human health risks. Regulatory criteria will form the basis for the evaluation of human health risks associated with exposure to chemicals at the levels estimated in the exposure assessment. Human

health risks associated with exposure to both individual chemicals and chemical mixtures will be evaluated.

*Uncertainty Analysis:* Due to the large number of assumptions that are required during the baseline risk assessment process, there is often a considerable amount of uncertainty associated with the risk estimates. A qualitative discussion of the sources and magnitudes of uncertainties inherent in the risk assessment process will be presented to address this issue. The exposure pathways and routes posing the greatest potential risks (i.e., greater than USEPA's Superfund remediation goals) will be reevaluated using central tendency scenarios.

### **3.7 REMEDIAL SYSTEM EVALUATION**

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The existing groundwater pumping and treatment system will be evaluated in terms of the performance of the pumping system or the ability of the pumping wells to capture the plume and the performance of the reverse osmosis (RO) treatment system. The construction details of the extraction wells will be reviewed and a determination if the extraction wells have been installed in the most effective and efficient locations will be made. This analysis will be used to determine if the extraction wells are: capturing the entire plume, capturing part of the plume, or spreading the plume to previously uncontaminated areas. If the system is not operating effectively (i.e. capturing the entire plume) recommendations that may include the alteration of pumping rates or the installation of additional extraction wells will be provided.

The operation of the current RO system will be reviewed to determine what measures or modifications can be made to increase the performance and ensure compliance with the SPDES discharge criteria. The treatment system's integration into the general operation of the facility, including the concentration and rate of recycled material into the treatment process will be reviewed.

Documentation of this evaluation will be incorporated into a Draft Engineering Report for the site.

### **3.8 PHASE II REMEDIAL INVESTIGATION**

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Based upon the results of the Phase I RI, it may be necessary to collect additional information to adequately evaluate the site characteristics and remedial alternatives. This may include bench or pilot-scale treatability studies of various technologies, the installation of additional soil borings or monitoring wells and the collection of additional groundwater or soil samples. If further remedial investigation activities are necessary a Phase II Remedial Investigation Workplan will be developed and submitted to the NYSDEC.

Although the specific Phase II Scope of Work has not yet been defined for the purposes of defining the budget it is assumed that the following tasks will be completed:

- Installation, development and sampling of three 80-foot deep monitoring wells. These wells will be installed based upon the results of the Phase I HydroPunch results. Sample analysis will be for metals.
- Collection of ten surface (0 to 3 inches) and near surface (up to 2 feet) soil samples. These soil samples will be located near the concrete drip pad and will aid in the determination of the horizontal and vertical extent of any contamination detected during the Phase I surface soil sampling program. Sample analysis will be for metals.

### **3.9 REMEDIAL INVESTIGATION REPORT**

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Upon the completion of the Remedial Investigation Field Report, a Remedial Investigation Report will be generated. The RI sections will present and document:

- Site History.
- Description of regional and site geology.
- Sample locations, dates, collection procedures, and observations made during field activities.
- Problems encountered while performing the work and actions taken to rectify those problems.

- Modifications to the approved Work Plan and why they were required.
- All detailed analytical results.
- Tabulated field analytical data.
- Boring Logs and sample collection logs.
- Tabulated/graphed groundwater elevation data.
- Aquifer test results.
- Site maps showing the sampling locations, analytical results, and prepared geologic cross section lines.
- Inventory of wells in the area.
- Raw data.

The RI sections will also provide an interpretation of the field data including:

- An assessment of the vertical and horizontal extent of contamination in subsurface soil and groundwater.
- An assessment of potential human health and environmental concerns.
- An interpretation of groundwater flow in the vicinity of the site and of potential factors that influence the distribution of groundwater contaminants.

### **3.10 FEASIBILITY STUDY**

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Using the data generated during the performance of the RI, an engineering Feasibility Study (FS) will be performed. State Standards, Criteria, and Guidance Values (SCGs) for each contaminant detected will be identified and compared to the concentrations reported in each sample collected during the RI. Based upon this comparison, a list of potential remedial alternatives that may be used to remediate the site will be developed. Each of the listed potential remedial alternatives will be screened to evaluate the overall effectiveness, implementability, and cost. A detailed analysis of the potentially applicable remedial

alternatives will include any additional refinements and/or modifications deemed necessary based upon the results of the RI and the Remedial System Evaluation described in Section 3.7. The detailed analysis of each alternative will provide a detailed description including a site plan; projected life of containment or treatment systems; and a projection of the extent to which the alternative achieves the response objectives. If necessary modeling will be done to predict the performance of the alternatives. The detailed analysis will evaluate the ability of each alternative to meet the following criteria:

- Overall protection of human health and the environment.
- Compliance with SCGs.
- Long term effectiveness and permanence.
- Reduction of toxicity, mobility, and volume.
- Short term effectiveness.
- Implementability.
- Cost efficiency.
- Community acceptance.

The FS sections will include a discussion of each of these evaluation criteria for each of the remedial alternatives under consideration. The alternatives will be compared with each other. Also the future use of the site will be addressed when comparing alternatives.

A recommendation of the preferred remedial alternative which is protective of public health and environment, complies to the maximum extent practicable with Applicable or Relevant and Appropriate Requirements (ARARs) and remediation objectives, reflects a preference for treatment as opposed to disposal and is cost effective, will be presented. A conceptual plan for implementation of the proposed remedy will be prepared. The Plan will include a site plan, process flow diagrams, a proposed implementation schedule, equipment lists and a cost estimate.



## **4.0 PROJECT SCHEDULE**

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The proposed project schedule is summarized in Table 4-1.

**TABLE 4-1  
BB&S TREATED LUMBER CORPORATION RI/FS**

**PROJECT SCHEDULE**

<b>Activity</b>	<b>Date</b>	<b>Elapsed Time</b>
1 Issuance of Work Assignment (WA) to the NYSDEC Standby Consultant	09/29/95	
2 Acknowledge Receipt of WA	10/09/95	10-days after issue of WA
3 Site Visit	10/16/95	within 2 weeks after issue of WA
4 Scoping Session	10/25/95	within 1 week of site visit
5 Submit Project Scoping Plan	11/01/95	1 week after scoping session
6 Approval of Project Scoping Plan	11/17/95	
7 **Submit Draft RI/FS Work Plan	11/27/95	1 week after approval of PSP
8 Approval of Draft RI/FS Work Plan	01/02/96	
9 **Submit Final RI/FS Work Plan	01/12/96	10 days after RI/FS WP approval
10 *Public Information Mtg. - RI/FS Work Plan	02/15/96	
11 *Final RI/FS Work Plan Approved Notice to Proceed	02/22/96	1 week after Public Information Meeting
12 Well Rehabilitation/Development	02/26/96	
13 Well Sampling	03/11/96	2 weeks after well development
14 Surface Soil Samples	03/15/96	
15 Subsurface Soil Sampling	04/01/96	
16 Hydropunch Sampling	04/08/96	4 weeks after well sampling
17 **Completion of Field Work	04/19/96	
18 Receive Data	05/17/96	
19 Commence Engineering Evaluation and develop possible IRM	05/31/96	
20 Complete Data Validation	06/17/96	
21 **Submit Preliminary - Data Analysis included , Data Validation/Usability Report	07/01/96	5 months after NTP
22 Submit Draft Scope of Phase II RI (if needed)	07/19/96	
23 Complete Human Health Risk Assessment	08/16/96	

**TABLE 4-1  
BB&S TREATED LUMBER CORPORATION RI/FS**

**PROJECT SCHEDULE**

Activity	Date	Elapsed Time
24 *Public Information Mtg. - RI Results	09/02/96	7 months after NTP
25 *Draft Remedial Investigation Report with Draft Engineer Evaluation and IRM Recommendations.	9/25/96	
26 Receive NYSDEC Comments	10/25/96	
27 Approval of Remedial Investigation Report	11/20/96	8 weeks after draft RI submission
28 Initiate FS Report	10/25/96	
29 **Submit Draft FS/Engineering Evaluation Report	02/20/97	52 weeks after NTP
30 Approval of FS Report	03/27/97	5 weeks after draft FS submission
The remainder of the schedule assumes no additional RI field work will be necessary.		
31 **Submit Final FS Report	04/24/97	4 weeks after approval of draft RI/FS
32 **Approve Final RI/FS Report/Prepare PRAP	05/22/97	15 months after NTP
33 *Public Information Mtg. - Present the PRAP	06/19/97	4 weeks after final RI/FS approval
34 Issue ROD	07/31/97	6 weeks after public meeting

**Notes:**

WA - Work Assignment

NTP - Notice to Proceed

PSP - Project Scoping Plan

PRAP - Proposed Remedial Action Plan

\* - Project Milestone

\*\* - Project Milestone requiring Performance Evaluation

- 1) Pending Drilling Contractor availability.
- 2) Assumes analytical results can be obtained in four weeks.

## **5.0 PROJECT ORGANIZATION**

### **5.1 PROJECT TEAM**

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Malcolm Pirnie has established a project team for the BB&S Treated Lumber Corporation Work Assignment whose collective qualifications and experience are strongly suited for the successful completion of the project. The proposed responsibilities of the key staff are summarized below:

**Paul H. Werthman, P.E.**, will be Project Officer. Mr. Werthman will have overall responsibility for quality and timeliness of the work performed.

**Anne Marie McManus, P.E.**, will be the Project Manager for the work. In this capacity, Ms. McManus will be responsible for the successful completion of each task including coordination and supervision of engineers and scientists, and adherence to the approved scope, schedule, and budget.

**Charles W. Trione**, will be the Project Leader and will be responsible for the development of work plans, coordination of subcontractors, implementation of the RI, hydrogeologic activities, and the interpretation and presentation of the data. As part of Mr. Trione's responsibilities, he will:

- Maintain all quality assurance policies that pertain to sampling, sample shipment, environmental monitoring, field activities, and record deliverables.
- Direct all field activities.
- Direct the preparation of the Phase I Remedial Investigation Report.

**Richard Brownell, P.E.**, Technical Director and **John Isbister, CPG**, Quality Assurance Manager, will be responsible for independent technical review of the project.

**Mark McGowan, C.I.H.**, Corporate Health and Safety Officer, will review and approve the site-specific Health and Safety Plan and resolve and health and safety issues that may arise.

**Conrad Tuefel**, Quality Assurance Officer, will work with the project manager to develop a site-specific quality assurance plan. He will conduct periodic field and sampling audits as needed, interface with the analytical laboratory to make requests and resolve problems, interface with the data validation and develop a project specific data usability report.

The technical support for this project are:

Hydrogeologic: Charles Trione  
Jennifer D'Angelo  
Field Services: Joseph Caragine  
Joan Karn  
Ecologist: Judith Vangalio

## **5.2 RESUMES**

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Resumes of the members of the project team have been submitted to the NYSDEC and are available in the program files.

## **5.3 MINORITY/WOMEN BUSINESS ENTERPRISE (M/WBE) UTILIZATION PLAN**

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The areas of work currently anticipated to result in Minority/Women Business Enterprise (M/WBE) utilization are:

- Analytical Laboratory
- Sample Collection
- Data Validation
- Survey
- Reproduction

A M/WBE Utilization Report is presented as Appendix D.

## **6.0 PROJECT COST**

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The Schedule 2.11 forms for completion of Tasks 1 through 6 are attached. Backup for selection of subcontractors is provided in Appendix F.

**Schedule 2.11 (a)**

**SUMMARY OF WORK ASSIGNMENT PRICE**

D - 002852 - 15.0

BB&S RI/FS

1. Direct Salary Costs [Schedule 2.11(b)]	\$61,354
2. Indirect Costs (1.538)	\$94,363
3. Direct Non-Salary Costs [Schedule 2.11(c)(d)]	\$19,008

**Subcontract Costs:**

**Cost - Plus - Fixed - Fee Subcontracts [Schedule 2.11 (e)]**

Name of Subcontractor	Services To Be Performed	Subcontractor Price
A. Edward O. Watts, P.E., P.C.	Professional Services	\$41,410
4. Subtotal Cost-Plus-Fixed-Fee Subcontracts		\$41,410

**Unit Price Subcontracts [Schedule 2.11(f)]**

Name of Subcontractor	Services To Be Performed	Subcontractor Price
A. Engineering & Environment	Analytical Services	\$55,235
B. A/E Blueprinting Inc.	Repro. Services	\$1,123
C. SJB Services, Inc.	Drilling Services	\$29,129
D. Nancy Potak	Data Validation	\$5,905
5. Total Unit Price Subcontracts		\$91,392

6. Subcontract Management Fee	\$4,218
7. Total Subcontract Costs (lines 4+5+6)	\$137,021
8. Fixed Fee	\$16,039
9. Total Work Assignment Price (lines 1+2+3+7+8)	\$327,785

**SCHEDULE 2.11 (b) - Tasks 1 through 5**

**SUMMARY TOTAL OF DIRECT LABOR HOURS**

NSPE Labor Classification		9	8	7	6	5	4	3	2	1	Tech	Total No. Direct Labor Hours Budgeted
Task #	Task Name											
Task 1A	Project Management Plan	1	0	0	4	0	0	48	48	2	0	103
Task 1B	Workplan	1	0	0	10	0	20	82	72	24	0	209
Task 1C	Public Participation Plan	0	0	0	10	0	0	16	16	6	0	48
Task 2	Remedial Investigation	12	0	4	78	16	0	550	487	150	0	1,297
Task 3	Engineering Evaluation	6	0	0	30	0	0	80	80	20	0	216
Task 4	Phase II RI	0	0	0	0	0	0	0	0	0	0	0
Task 5	Focused FS	12	0	0	82	0	0	152	130	48	0	424
Subtotal 1995 hours		2	0	0	24	0	20	146	136	32	0	360
Subtotal 1996 hours		28	0	4	170	16	0	750	687	210	0	1,865
Subtotal 1997 hours		2	0	0	20	0	0	32	10	8	0	72
<b>Total hours</b>		<b>32</b>	<b>0</b>	<b>4</b>	<b>214</b>	<b>16</b>	<b>20</b>	<b>928</b>	<b>833</b>	<b>250</b>	<b>0</b>	<b>2,297</b>
	Average 1995 Rates	\$56.55	\$49.88	\$43.16	\$39.75	\$32.97	\$30.05	\$26.29	\$21.01	\$17.05	\$12.42	\$8,909
	Average 1996 Rates	\$60.51	\$53.37	\$46.18	\$42.53	\$35.28	\$32.15	\$28.13	\$22.48	\$18.24	\$13.29	\$50,045
	Average 1997 Rates	\$64.74	\$57.11	\$49.41	\$45.51	\$37.75	\$34.40	\$30.10	\$24.05	\$19.52	\$14.22	\$2,400
<b>Total Direct Labor Cost</b>		<b>\$1,937</b>	<b>\$0</b>	<b>\$185</b>	<b>\$9,094</b>	<b>\$564</b>	<b>\$601</b>	<b>\$25,899</b>	<b>\$18,542</b>	<b>\$4,532</b>	<b>\$0</b>	<b>\$61,354</b>



**SCHEDULE 2.11 (b) - Tasks 1 through 5**

**SUMMARY TOTAL OF DIRECT LABOR HOURS**

[WORKSHEET - Not to be submitted]

NSPE		9	8	7	6	5	4	3	2	1	Tech	Total No. Direct Labor Hours Budgeted	Direct Labor Cost
Labor Classification Task #	Task Name												
Task 1A	Project Management Plan	1	0	0	4	0	0	48	48	2	0	103	\$2,520
	1995	1			4			48	48	2		103	\$2,520
	1996											0	\$0
	1997											0	\$0
Task 1B	Workplan	1	0	0	10	0	20	82	72	24	0	209	\$5,133
	1995	1			10		20	82	72	24		209	\$5,133
	1996											0	\$0
	1997											0	\$0
Task 1C	Public Participation Plan	0	0	0	10	0	0	16	16	6	0	48	\$1,257
	1995				10			16	16	6		48	\$1,257
	1996											0	\$0
	1997											0	\$0
Task 2	Remedial Investigation	12	0	4	78	16	0	550	487	150	0	1,297	\$33,972
	1995											0	\$0
	1996	12		4	70	16		550	487	150		1,289	\$33,608
	1997				8							8	\$364
Task 3	Engineering Evaluation	6	0	0	30	0	0	80	80	20	0	216	\$6,053
	1995											0	\$0
	1996	6	0	0	30	0	0	80	80	20		216	\$6,053
	1997											0	\$0
Task 4	Phase II RI	0	0	0	0	0	0	0	0	0	0	0	\$0
	1995											0	\$0
	1996	0	0	0	0	0	0	0	0	0		0	\$0
	1997											0	\$0

**SCHEDULE 2.11 (b) - Tasks 1 through 5**

**SUMMARY TOTAL OF DIRECT LABOR HOURS**

**WORKSHEET - Not to be submitted**

NSPE		9	8	7	6	5	4	3	2	1	Tech	Total No. Direct Labor Hours Budgeted	Direct Labor Cost
Labor Classification	Task #	Task Name											
Task 5	Focused FS		12	0	0	82	0	152	130	48	0	424	\$12,420
		1995										0	\$0
		1996	10	0	0	70	0	120	120	40		360	\$10,385
		1997	2			12		32	10	8		64	\$2,035
		Subtotal 1995 hours	2	0	0	24	0	146	136	32	0	360	
		Subtotal 1996 hours	28	0	4	170	16	750	687	210	0	1,865	
		Subtotal 1997 hours	2	0	0	20	0	32	10	8	0	72	
		<b>Total hours</b>	<b>32</b>	<b>0</b>	<b>4</b>	<b>214</b>	<b>16</b>	<b>928</b>	<b>833</b>	<b>250</b>	<b>0</b>	<b>2,297</b>	<b>\$61,354</b>
		Average 1995 Rate	\$56.55	\$49.88	\$43.16	\$39.75	\$32.97	\$30.05	\$21.01	\$17.05	\$12.42		\$8,909
		Average 1996 Rate	\$60.51	\$53.37	\$46.18	\$42.53	\$35.28	\$32.15	\$22.48	\$18.24	\$13.29		\$50,045
		Average 1997 Rate	\$64.74	\$57.11	\$49.41	\$45.51	\$37.75	\$30.10	\$24.05	\$19.52	\$14.22		\$2,400
		<b>Total Direct Labor Cost</b>											<b>\$61,354</b>

**SCHEDULE 2.11 (b-1) - Tasks 1 through 5**

**SUMMARY TOTAL OF DIRECT ADMINISTRATIVE LABOR HOURS**

[Already Included on Schedule 2.11 (b)]

NSPE		9	8	7	6	5	4	3	2	1	Total No. Direct Labor Hours
Labor Classification	Task #										
	Task 1	0	0	0	6	0	0	0	8	16	30
	Task 2	0	0	0	16	0	0	1	0	37	54
	Task 3	0	0	0	11	0	0	0	0	8	19
	Task 4	0	0	0	0	0	0	0	0	0	0
	Task 5	0	0	0	14	0	0	0	0	32	46
<b>Total hours</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>8</b>	<b>93</b>	<b>149</b>
Average	1995 Rate	\$56.55	\$49.88	\$43.16	\$39.75	\$32.97	\$30.05	\$26.29	\$21.01	\$17.05	
Average	1996 Rate	\$60.51	\$53.37	\$46.18	\$42.53	\$35.28	\$32.15	\$28.13	\$22.48	\$18.24	
Average	1997 Rate	\$64.74	\$57.11	\$49.41	\$45.51	\$37.75	\$34.40	\$30.10	\$24.05	\$19.52	

Engineer/Contract Number: Malcolm Pirnie / D-002852  
 Project Name: BB&S RI/FS  
 Work Assignment Number: WA # 15.0

Date Prepared: November 1995

**DETAILED BREAKDOWN OF  
 DIRECT ADMINISTRATIVE LABOR HOURS BUDGETED ON SCHEDULE 2-11(b-1)  
 [WORKSHEET - to be sent with Work Plan, but separately]**

ADMIN. TASKS	Conflict Of Interest Checks										Prepare 2.11 Schedules										Conduct Progress Reviews										Review Work Assignment (WA) Progress																		Program Management		
	Conflict Of Interest Checks										Prepare 2.11 Schedules										Conduct Progress Reviews										Prepare Monthly Project Report & Schedule Update										MBE/WBE Activities										
	9	8	7	6	5	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	9	8	7	6	5	4																
NSPE																																																			
Level																																																			
Task 1				1					2				8																									1													
Task 2																2																						1													
Task 3																	1																					1													
Task 4																																																			
Task 5																																							1												
Subtotal	0	0	0	1	0	0	0	0	2	0	0	0	8	0	0	3	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	2	0	0	0	0	4	0	0									
TOTAL	1										10										3										18										2										4

Engineer/Contract Number: Malcolm Pirnie / D-002852  
 Project Name: BB&S RI/FS  
 Work Assignment Number: WA # 15.0

Date Prepared: November 1995

**DETAILED BREAKDOWN OF  
 DIRECT ADMINISTRATIVE LABOR HOURS BUDGETED ON SCHEDULE 2-11(b-1)  
 [WORKSHEET - to be sent with Work Plan, but separately]**

ADMIN. TASKS	C.A.P. FORM PREPARATION												MISCELLANEOUS												TOTAL ADMIN. Level of Effort (hours)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	Prepare Monthly Cost Control Report and C.A.P. Form						Oversee C.A.P. Form Preparation						NSPE List Updates						Equipment Use and Inventory						Word Processing and Report Prep.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

**Table 2.11 (c)**

**DETAILED BREAKDOWN OF DIRECT NON-SALARY COSTS  
WA # 15.0**

**[WORKSHEET - to be submitted with Work Plan, but separately]**

Item	Maximum Reimbursement Rate	Estimated Number of Units	Estimated Cost	Total Estimated Cost
<b>Task 1</b>				
<i>Travel &amp; Subsistence</i>				
1 Mileage	\$0.235 /mile	0 miles	\$0.00	
2 Airfare Buf to Islip	\$500 /ticket	2 tickets	\$1,000.00	
3 Airfare Alb. to Islip	\$450 /ticket	1 ticket	\$450.00	
4 Per Diem	At Cost	At Cost	\$0.00	\$1,450.00
<i>Other Direct Costs</i>				
1 Reproduction	\$0.06 /page	5,300 copies	\$318.00	
2 Mail	At Cost	At Cost	\$100.00	
3 PC	\$5.00 /hour	28 hours	\$140.00	
4 CADD	\$15.00 /hour	8 hours	\$120.00	
5 Communication	At Cost	At Cost	\$25.00	\$703.00
<b>TOTAL - Task 1</b>				<b>\$2,153.00</b>

<b>Task 2</b>				
<i>Travel &amp; Subsistence</i>				
1 Mileage	\$0.235 /mile	1,750 miles	\$411.25	
2 Airfare Buf to Islip	\$500 /ticket	1 tickets	\$500.00	
3 Per diem	\$151 /day	29 days	\$4,379.00	\$5,290.25
<i>Other Direct Costs</i>				
1 Reproduction	\$0.06 /page	500 copies	\$30.00	
2 Mail	At Cost	At Cost	\$100.00	
3 PC	\$5.00 /hour	190 hours	\$950.00	
4 CADD	\$15.00 /hour	33 hours	\$495.00	
5 Communication	At Cost	At Cost	\$62.50	\$1,637.50
<b>TOTAL - Task 2</b>				<b>\$6,927.75</b>

<b>Task 3</b>				
<i>Travel &amp; Subsistence</i>				
1 Mileage	\$0.235 /mile	0 miles	\$0.00	
2 Airfare Buf to Islip	\$500 /ticket	1 tickets	\$500.00	
3 Per Diem	At Cost	At Cost	\$0.00	\$500.00
<i>Other Direct Costs</i>				
1 Reproduction	\$0.06 /page	0 copies	\$0.00	
2 Mail	At Cost	At Cost	\$25.00	
3 PC	\$5.00 /hour	40 hours	\$200.00	
4 CADD	\$15.00 /hour	14 hours	\$210.00	
5 Communication	At Cost	At Cost	\$25.00	\$460.00
<b>TOTAL - Task 3</b>				<b>\$960.00</b>

**Table 2.11 (c)**

**DETAILED BREAKDOWN OF DIRECT NON-SALARY COSTS  
WA # 15.0**

**[WORKSHEET - to be submitted with Work Plan, but separately]**

Item	Maximum Reimbursement Rate	Estimated Number of Units	Estimated Cost	Total Estimated Cost
<b>Task 4</b>				
<i>Travel &amp; Subsistence</i>				
1 Mileage	\$0.235 /mile	0 miles	\$0.00	
2 Travel	At Cost	At Cost	\$0.00	
3 Per Diem	\$151 /day	0 days	\$0.00	\$0.00
<i>Other Direct Costs</i>				
1 Reproduction	\$0.06 /page	0 copies	\$0.00	
2 Mail	At Cost	At Cost 0	\$0.00	
3 PC	\$5.00 /hour	0 hours	\$0.00	
4 CADD	\$15.00 /hour	0 hours	\$0.00	
5 Communication	At Cost	At Cost	\$0.00	\$0.00
<b>TOTAL - Task 4</b>				<b>\$0.00</b>

<b>Task 5</b>				
<i>Travel &amp; Subsistence</i>				
1 Mileage	\$0.235 /mile	0 miles	\$0.00	
2 Airfare Buf to Islip	\$500 /ticket	1 tickets	\$500.00	
3 Per Diem	At Cost	At Cost	\$0.00	\$500.00
<i>Other Direct Costs</i>				
1 Reproduction	\$0.06 /page	0 copies	\$0.00	
2 Mail	At Cost	At Cost	\$100.00	
3 PC	\$5.00 /hour	80 hours	\$400.00	
4 CADD	\$15.00 /hour	32 hours	\$480.00	
5 Communication	At Cost	At Cost	\$37.50	\$1,017.50
<b>TOTAL - Task 5</b>				<b>\$1,517.50</b>

<b>TOTAL - All Tasks</b>	<b>\$11,558.25</b>
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**Schedule 2.11 (d)**

**SUMMARY OF EQUIPMENT ACTIVITY  
WA # 15.0**

<b>SCHEDULE</b>	<b>Estimated Quantity</b>	<b>Unit Cost</b>	<b>Total Budgeted Cost</b>
Schedule 2.11(d)1 - Purchased Equipment	At Cost	At Cost	\$0.00
Schedule 2.11(d)2 - Malcolm Pirnie Rental	At Cost	At Cost	\$0.00
Schedule 2.11(d)3 - Rented Equipment	At Cost*	At Cost	\$5,650.00
Schedule 2.11(d)4 - Site Dedicated Equipment	At Cost*	At Cost	\$0.00
Schedule 2.11(d)5 - Consumable Supplies	At Cost*	At Cost	\$1,800.00
<b>TOTAL</b>			<b>\$7,450.00</b>

\* Detailed breakdown on given schedule



**Table 2.11 (d)1**

**EQUIPMENT PURCHASED UNDER THE CONTRACT  
WA # 15.0**

**[WORKSHEET - to be submitted with Work Plan, but separately]**

<b>Item</b>	<b>Estimated Purchase Price</b>	<b>O&amp;M Rate</b>	<b>Estimated Usage</b>	<b>Estimated Usage Cost</b>
None	\$0.00	\$0 /day	0 day(s)	\$0.00
<b>Total</b>				<b>\$0.00</b>

*a) The O&M rate is reimbursable only while the equipment is in the custody of the Engineer*

*b) There will be no storage charge or capital recovery charge for equipment purchased by the Department*

**Table 2.11 (d) 2**

**MAXIMUM REIMBURSEMENT RATES - CONSULTANT OWNED EQUIPMENT  
WA # 15.0**

<b>Item</b>	<b>Purchase Price (x 85%)</b>	<b>O&amp;M* Rate</b>	<b>Estimated Usage</b>	<b>Estimated Usage Cost</b>
None	\$0.00	\$0 /day	0 day(s)	\$0.00
<b>Total</b>				<b>\$0.00</b>

*\*See enclosed rate justification*

**Table 2.11 (d) 3**

**MAXIMUM REIMBURSEMENT RATES - VENDER RENTED EQUIPMENT\***  
**WA # 15.0**

Item	Unit Price	Quantity	Item Cost	Total Budgeted Cost
<b>Task 2</b>				
Water Level meter	\$80.00 /week	2 week(s)	\$160.00	
Pressure Transducers (Daily Rate-first week)	\$35.00 /unit-day	70 unit-days	\$2,450.00	
Pressure Transducers (Daily Rate - second week)	\$25.00 /unit-day	50 unit-days	\$1,250.00	
Data logger Hermit SE2000 (Daily rate-week 1)	\$170.00 /unit-day	7 unit-days	\$1,190.00	
Data logger Hermit SE2000 (Daily rate-week 2)	\$120.00 /day	5 unit-days	\$600.00	
<b>Total - Task 2</b>				<b>\$5,650.00</b>

<b>Total - All Tasks</b>	<b>\$5,650.00</b>
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\* Reimbursement will be paid at the actual receipted rental cost

**Table 2.11 (d) 4**

**MAXIMUM REIMBURSEMENT RATES - SITE-DEDICATED EQUIPMENT  
WA # 15.0**

<b>Item</b>	<b>Unit Price</b>	<b>Estimated Quantity</b>	<b>Total Estimated Cost</b>
None	\$0.00 /unit	0 unit(s)	\$0.00
<b>Total</b>			<b>\$0.00</b>

**Table 2.11 (d) 5**

**DETAILED BREAKDOWN OF CONSUMABLE SUPPLIES\*  
WA # 15.0**

<b>Item</b>	<b>Unit Price</b>	<b>Quantity</b>	<b>Item Cost</b>	<b>Total Budgeted Cost</b>
<b>Task 2</b>				
Miscellaneous Supplies (Up to \$1,000 total)**	Lump Sum	Lump Sum	\$500.00	
Personal Air Monitoring	\$150.00 /day	4 days	\$600.00	
PPE Level B	\$71.00 /man-day	0 /man-day(s)	\$0.00	
PPE Level C	\$30.00 /man-day	0 /man-day(s)	\$0.00	
PPE Level D	\$14.00 /man-day	50 /man-day(s)	\$700.00	
<b>Total Task 2</b>				<b>\$1,800.00</b>

<b>Total - All Tasks</b>	<b>\$1,800.00</b>
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**Notes:**

\* Each item costing over \$100 should be identified on a separate line.

\*\* Miscellaneous supplies include: buckets, paper towel, film developing, maps shovels  
logbooks, clear tape, wooden stakes, flagging tape, disposable cameras,

*Note: Consumable supplies such as gas, diesel fuel, oil, film, stakes, ice, distilled water, rope shall be direct billed with appropriate receipts.*

**Schedule 2.11 (e)**

**SUMMARY OF COST-PLUS-FIXED-FEE SUBCONTRACTORS  
WA # 15.0**

Item	Services To Be Performed	Task Total		Total
		Task 2	Task x	
1. Edward O. Watts, P.E., P.C.	Professional Services	\$41,409.93	\$0.00	\$41,409.93
2. Vendor Unassigned	Services unassigned	\$0.00	\$0.00	\$0.00
<b>TOTAL</b>		<b>\$41,409.93</b>	<b>\$0.00</b>	<b>\$41,409.93</b>

**Table 2.11 (e-1)****MAXIMUM REIMBURSEMENT RATES -  
COST-PLUS-FIXED-FEE SUBCONTRACTOR****Edward O. Watts, P.E., P.C.  
Professional Services****TASK 2****A. Direct Salary Costs**

Professional Responsibility Level	NSPE Labor Classification	Average Reimbursement Rate (\$/hr)	Estimated No. of Hours	Total Est. Direct Salary Cost (Ave. Reim. Rate x Est. # of hrs)	Total Cost
Officer	IX	\$49.04	6	\$294.24	
Sr. Environmental Scientist	IV	\$18.27	62	\$1,132.74	
Environmental Scientist	II	\$14.75	342	\$5,044.50	
Engineer	II	\$14.25	44	\$627.00	

<b>Total Direct Salary Costs</b>	<b>\$7,098.48</b>
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Footnotes: 1. These rates will be held firm until 12/31/96  
 2. Reimbursement will be limited to the lesser of either the individuals actual hourly rate or the maximum rate for each labor category.  
 3. Reimbursement will be limited to the maximum reimbursement rate for the professional responsibility level of the actual work performed.

**B. Indirect Costs** **\$7,595.37**

- shall be paid based on a percentage of direct salary costs incurred and shall not exceed a maximum of 107 %

**C. Maximum Reimbursement Rates for Direct Non-Salary Costs**

Item	Maximum Reimbursement Rate (specify Unit)	Est. No. Units	Total Est. Cost
Copying	\$0.04 /page	3750	\$150.00
Per Diem	\$151.00 /day	24	\$3,624.00
Vehicle Rental	\$280.00 /week	6	\$1,680.00
HyDAC	\$100.00 /week	5	\$500.00
Solinst	\$75.00 /week	5	\$375.00
Turbidity Meter	\$65.00 /week	5	\$325.00
Submersible Pumps (3)	\$800.00 /week	5	\$4,000.00
Hose	\$1.19 /foot	800	\$952.00
Level D PPE	\$14.00 /man-day	26	\$364.00
Personal Air Sampling	\$150.00 /sample	4	\$600.00
Misc Supplies	Lump Sum		\$1,300.00
Shipping	\$75.00 /day	26	\$1,950.00
Polyethylene Bailers	\$8.00 /bailer	84	\$672.00
Peristaltic Pump	\$85.00 /week	4	\$340.00
Tax and shipping on rented equipment			\$1,005.00
Filter	\$12.50 /each	2	\$25.00

<b>Total Direct Non-Salary Costs</b>	<b>\$17,862.00</b>
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**D. Surveying Subcontractor** **\$6,650.00****E. Fixed Fee** **\$2,204.08****TOTAL - Task 2** **\$41,409.93****TOTAL - All Tasks** **\$41,409.93**

**Schedule 2.11 (f)**

**SUMMARY OF UNIT PRICE SUBCONTRACTORS  
WA # 15.0**

Subcontractor	Services To Be Performed	Task Number			Total Subcontractor Cost	Total Management Fee
		Task 2		Task 5		
		Cost	Mngt. Fee	Cost		
1. Engineering & Environment	Analytical Services	\$55,235.00	\$2,761.75		\$55,235.00	\$2,761.75
2. A/E Blueprinting Inc.	Repro. Services	\$765.60		\$357.60	\$1,123.20	\$0.00
3. SJB Services, Inc.	Drilling Services	\$29,129.00	\$1,456.45		\$29,129.00	\$1,456.45
4. Nancy Potak	Data Validation	\$5,905.25			\$5,905.25	\$0.00
<b>SUBTOTAL</b>		<b>\$91,034.85</b>	<b>\$4,218.20</b>	<b>\$357.60</b>	<b>\$91,392.45</b>	<b>\$4,218.20</b>
<b>TASK Total</b>		<b>\$95,253.05</b>		<b>\$357.60</b>	<b>\$91,392.45</b>	<b>\$4,218.20</b>



**Table 2.11 (f-1)**

**DETAILED BREAKDOWN OF UNIT PRICE SUBCONTRACTORS**

**Engineering & Environment  
Analytical Services**

Task / Subtask	Parameter	Method	Matrix	No. of Tests	Unit Rate <sup>(1)</sup> (\$)	Item Total (\$)	Subtask Total (\$)	Task Total (\$)
TASK 2								
Surface Soil Sampling	Hexavalent Chromium	218.4	S	12	\$60	\$720	\$2,832	
	TAL Metals		S	12	\$176	\$2,112		
Subsurface Investigation	Volatiles	91-1	S	13	\$165	\$2,145	\$20,602	
	Semivolatiles	91-2	S	13	\$385	\$5,005		
	Hexavalent Chromium	218.4	S	57	\$60	\$3,420		
	TAL Metals		S	57	\$176	\$10,032		
Hydropunch	Volatile Organics	91-1	W	3	\$165	\$495	\$9,066	
	Semivolatile	91-2	W	3	\$385	\$1,155		
	Hexavalent Chromium	218.4	W	36	\$30	\$1,080		
	TAL Metals		W	36	\$176	\$6,336		
Round 1 Groundwater Sampling	Volatiles	91-1	W	2	\$165	\$330	\$12,847	
	Semivolatiles	91-2	W	2	\$385	\$770		
	Hexavalent Chromium	218.4	W	48	\$30	\$1,440		
	TAL Metals		W	48	\$176	\$8,448		
	Water Quality Parameters <sup>(2)</sup>		W	11	\$169	\$1,859		
Round 2 Groundwater Sampling	TAL Metals		W	48	\$176	\$8,448	\$9,888	
	Hexavalent Chromium	218.4	W	48	\$30	\$1,440		
TOTAL - Task 2							\$55,235	

<b>TOTAL - All Tasks</b>	<b>\$55,235</b>
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**Notes:**

- <sup>(1)</sup> Unit rates based on quoted rates for Subcontract with EEI
- <sup>(2)</sup> Water Quality Parameters include: hardness (Method 130.2), phosphate (Method 365.2), silica (Method 370.1), TOC (Method 415.1), strontium (Method 7780), ammonia (Method 350.2), alkalinity (Method 310.1), nitrate (Method 352.1), sulfate (Method 375.4), chloride (Method 325.3) and fluoride (Method 340.2)

**Table 2.11 (f-2)**

**DETAILED BREAKDOWN OF UNIT PRICE SUBCONTRACTORS**

**A/E Blueprinting Inc.  
Repro. Services**

<b>Item</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Item Cost</b>	<b>Total</b>
<b>TASK 2</b>				
RI Report*	\$31.90 /unit	24 units	\$765.60	
<b>TOTAL - Task 2</b>				<b>\$765.60</b>

<b>TASK 5</b>				
FS Report**	\$14.90 /unit	24 units	\$357.60	
<b>TOTAL - Task 5</b>				<b>\$357.60</b>

<b>TOTAL</b>			<b>\$1,123.20</b>	
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**Notes:**

- \* The RI Report Unit consists of 350 (8-1/2" x 11") sheets and 10 (11" x 17") sheets.  
In addition 12 blueprints will be inserted in back pockets.  
Twelve copies are assumed for the draft and 12 copies are assumed for the final RI report.
- \*\* The FS Report Unit consists of 150 (8-1/2" x 11") sheets and 10 (11" x 17") sheets.  
Twelve copies are assumed for the draft and 12 copies are assumed for the final FS Report.

**Table 2.11 (f-3)**

**DETAILED BREAKDOWN OF UNIT PRICE SUBCONTRACTORS**

**SJB Services, Inc.  
Drilling Services**

Task / Subtask / Item Description	Unit Price	Quantity	Item Cost	Subtask Total	Task Total
TASK 2					
Mobilization/Demobilization... of Rig, Support Equipment, and Materials	Lump Sum	Lump Sum	\$500	\$500	
Boreholes <sup>(1)</sup>					
41/4" hollow stem auger drilling (0 to 50')	\$10 /ft	240 ft	\$2,400	\$4,164	
Split Spoon Sampling:					
2" Diameter (0 to 50')	\$6 /ea.	54 ea.	\$324		
Grouting of borehole	\$6 /ft	240 ft	\$1,440		
Hydropunch Sampling				\$10,560	
41/4" hollow stem auger drilling (0 to 50')	\$10 /ft	300 ft	\$3,000		
41/4" hollow stem auger drilling (50 to 100')	\$13 /ft	180	\$2,340		
Hydropunch Samples	\$130 /ea.	18 ea.	\$2,340		
Grouting of borehole	\$6 /ft	480 ft	\$2,880		
Other Costs:				\$4,885	
Personal Air Monitoring	\$350 /day	4 days	\$1,400		
Decontamination Pad	\$500	1	\$500		
55-Gallon Drums	\$35 /drum	25 drums	\$875		
Drum Handling	\$140 /hour	3 hours	\$420		
Rate per rig-crew hour for awaiting decisions, meetings and equip. decon	\$130 /hour	3 hour	\$390		
Decon Time	\$130 /hour	10 ft	\$1,300		
Well Rehabilitation				\$6,160	
Removal of Existing Protective Casing	\$130 /ea.	22 ea.	\$2,860		
Installation of Protective Casing,, Concrete Apron, and locks	\$150 /ea.	22 ea.	\$3,300		
Well development	\$130 /hour	22 hours	\$2,860	\$2,860	
TOTAL - Task 2					

**Notes:**

- (1) Unit Costs are for Level D personal protection requirements.  
 (2) Preliminary cost estimate. Will be revised when scope of Phase II RI is finalized.

**Table 2.11 (f-4)****DETAILED BREAKDOWN OF UNIT PRICE SUBCONTRACTORS**

**Nancy Potak  
Data Validation**

Task / Subtask	Parameter	Method	Matrix	No. of Tests	Unit Rate (\$) <sup>(1)</sup>	Item Cost (\$)	Subtask Total (\$)	Task Total (\$)
TASK 2								
Surface Soil Sampling	TAL Metals	Superfund	S	12	\$32.00	\$384.00	\$399.00	
	Hexavalent Chromium	218.4	S	12	\$1.25	\$15.00		
Soil Borings	TAL - Metals	Superfund	S	57	\$32.00	\$1,824.00	\$1,995.25	
	Volatiles	91-1	S	2	\$22.00	\$44.00		
	Hexavalent Chromium	218.4	S	57	\$1.25	\$71.25		
	Semivolatiles	91-2	S	2	\$28.00	\$56.00		
Round 1 Groundwater	TAL - Metals	Superfund	W	48	\$28.00	\$1,344.00	\$1,474.00	
	Hexavalent Chromium	218.4	W	48	\$1.00	\$48.00		
	Volatiles	91-1	W	2	\$18.00	\$36.00		
	Semivolatiles	91-2	W	2	\$23.00	\$46.00		
Round 2 Groundwater	TAL - Metals	Superfund	W	48	\$28.00	\$1,344.00	\$1,392.00	
	Hexavalent Chromium	218.4	W	48	\$1.00	\$48.00		
Hydropunch Samples	TAL - Metals	Superfund	W	18	\$28.00	\$504.00	\$645.00	
	Hexavalent Chromium	218.4	W	18	\$1.00	\$18.00		
	Volatiles	91-1	W	3	\$18.00	\$54.00		
	Semivolatiles	91-2	W	3	\$23.00	\$69.00		
TOTAL - Task 2							\$5,905.25	

<b>TOTAL</b>	<b>\$5,905.25</b>
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**Notes:**

- (1) Unit rates based on quoted rates for Subcontract with Nancy Potak
- (2) Task 4 costs are preliminary costs. Will be revised when scope for Phase II RI is finalized.

ENGINEER: MALCOLM PIRNIE, INC

**SCHEDULE 2.11 (g)**

DATE PREPARED: 08-Feb-96

NYSDEC CONTRACT/WA #: D - 002852 - 15.0

PROJECT NAME: BB&amp;S RI/FS

MPI PROJECT #: 0266-323

NYSDEC TASK #/NAME: SUMMARY

**MONTHLY COST CONTROL REPORT  
SUMMARY OF FISCAL INFORMATION**

BILLING PERIOD: 00/00/00 - 00/00/00

MPI STATEMENT #: n

DEC VOUCHER #: n

% of BUDGET COMPLETE: 0%

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD (CAP #n-month)	B PAID TO DATE (thru CAP #n-month)	C TOTAL COSTS INCURRED TO DATE (A + B)	D ESTIMATED COSTS TO COMPLETION (F-C)	E ESTIMATED TOTAL CONTRACT PRICE (A+B+D)	F APPROVED BUDGET (Date)	G ESTIMATED UNDER/OVER (F-E)
1. DIRECT SALARY COST						\$61,354	
1a. INDIRECT COST - 1.538 %						\$94,363	
2. SUBTOTAL: Billable Labor Cost (1+1a)						\$155,717	
2a. OVER-TIME SALARY						\$0	
3. SUBTOTAL: Direct Salary, Indirect Cost and Over-time Cost (2+2a)						\$155,717	
4. TRAVEL & SUBSISTENCE						\$7,740	
5. OTHER NON-SALARY COST						\$11,268	
6. SUBTOTAL: Direct Non-Salary Cost (4+5)						\$19,008	
7. SUBCONTRACTORS Management Fee included above						\$137,021 \$4,218	
8. TOTAL CONTRACT COST (3+6+7)						\$311,746	
9. FIXED FEE - 10.3 %						\$16,039	
10. TOTAL CONTRACT PRICE (8+9)						\$327,785	
11. RETAINAGE - 5 %						\$16,389	
12. CAP FORM SUBMISSION						\$311,395	

PROJECT MANAGER ENGINEER

DATE

ENGINEER: MALCOLM PIRNIE, INC

**SCHEDULE 2.11 (g)**

DATE PREPARED: 08-Feb-96

NYSDEC CONTRACT/WA #:

D - 002852 - 15.0

PROJECT NAME:

BB&amp;S RI/FS

MPI PROJECT #:

0266-323

NYSDEC TASK #/NAME:

1-Workplan

**MONTHLY COST CONTROL REPORT  
SUMMARY OF FISCAL INFORMATION**

BILLING PERIOD: 00/00/00 - 00/00/00

MPI STATEMENT #: n

DEC VOUCHER #: n

% of BUDGET COMPLETE: 0%

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD (CAP #n-month)	B PAID TO DATE (thru CAP #n-month)	C TOTAL COSTS INCURRED TO DATE (A + B)	D ESTIMATED COSTS TO COMPLETION (F-C)	E ESTIMATED TOTAL CONTRACT PRICE (A+B+D)	F APPROVED BUDGET (Date)	G ESTIMATED UNDER/OVER (F-E)
1. DIRECT SALARY COST						\$8,909	
1a. INDIRECT COST - 1.538 %						\$13,703	
2. SUBTOTAL: Billable Labor Cost (1+1a)						\$22,612	
2a. OVER-TIME SALARY						\$0	
3. SUBTOTAL: Direct Salary, Indirect Cost and Over-time Cost (2+2a)						\$22,612	
4. TRAVEL & SUBSISTENCE						\$1,450	
5. OTHER NON-SALARY COST						\$703	
6. SUBTOTAL: Direct Non-Salary Cost (4+5)						\$2,153	
7. SUBCONTRACTORS Management Fee included above						\$0 \$0	
8. TOTAL CONTRACT COST (3+6+7)						\$24,765	
9. FIXED FEE - 10.3 %						\$2,329	
10. TOTAL CONTRACT PRICE (8+9)						\$27,094	

PROJECT MANAGER ENGINEER

DATE

ENGINEER: MALCOLM PIRNIE, INC  
 NYSDEC CONTRACT/WA #: D - 002852 - 15.0  
 PROJECT NAME: BB&S R/FS  
 MPI PROJECT #: 0266-323  
 NYSDEC TASK #/NAME: 2-Remedial Investigation

**SCHEDULE 2.11 (g)**

DATE PREPARED: 08-Feb-96

**MONTHLY COST CONTROL REPORT  
 SUMMARY OF FISCAL INFORMATION**

BILLING PERIOD: 00/00/00 - 00/00/00  
 MPI STATEMENT #: n  
 DEC VOUCHER #: n

% of BUDGET COMPLETE: 0%

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD (CAP #n-month)	B PAID TO DATE (thru CAP #n-month)	C TOTAL COSTS INCURRED TO DATE (A + B)	D ESTIMATED COSTS TO COMPLETION (F-C)	E ESTIMATED TOTAL CONTRACT PRICE (A+B+D)	F APPROVED BUDGET (Date)	G ESTIMATED UNDER/OVER (F-E)
1. DIRECT SALARY COST						\$33,972	
1a. INDIRECT COST - 1.538 %						\$52,249	
2. SUBTOTAL: Billable Labor Cost (1+1a)						\$86,220	
2a. OVER-TIME SALARY						\$0	
3. SUBTOTAL: Direct Salary, Indirect Cost and Over-time Cost (2+2a)						\$86,220	
4. TRAVEL & SUBSISTENCE						\$5,290	
5. OTHER NON-SALARY COST						\$9,088	
6. SUBTOTAL: Direct Non-Salary Cost (4+5)						\$14,378	
7. SUBCONTRACTORS Management Fee included above						\$136,593 \$4,148	
8. TOTAL CONTRACT COST (3+6+7)						\$237,191	
9. FIXED FEE - 10.3 %						\$8,881	
10. TOTAL CONTRACT PRICE (8+9)						\$246,072	

PROJECT MANAGER ENGINEER \_\_\_\_\_

DATE \_\_\_\_\_

ENGINEER: MALCOLM PIRNIE, INC  
 NYSDC CONTRACT/WA #: D - 002852 - 15.0  
 PROJECT NAME: BB&S R/FS  
 MPI PROJECT #: 0266-323  
 NYSDC TASK #/NAME: 3-Engineering Evaluation

**SCHEDULE 2.11 (g)**

DATE PREPARED: 08-Feb-96

**MONTHLY COST CONTROL REPORT  
 SUMMARY OF FISCAL INFORMATION**

BILLING PERIOD: 00/00/00 - 00/00/00  
 MPI STATEMENT #: n  
 DEC VOUCHER #: n

% of BUDGET COMPLETE: 0%

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD (CAP #n-month)	B PAID TO DATE (thru CAP #n-month)	C TOTAL COSTS INCURRED TO DATE (A + B)	D ESTIMATED COSTS TO COMPLETION (F-C)	E ESTIMATED TOTAL CONTRACT PRICE (A+B+D)	F APPROVED BUDGET (Date)	G ESTIMATED UNDER/OVER (F-E)
1. DIRECT SALARY COST						\$6,053	
1a. INDIRECT COST - 1.538 %						\$9,309	
2. SUBTOTAL: Billable Labor Cost (1+1a)						\$15,361	
2a. OVER-TIME SALARY						\$0	
3. SUBTOTAL: Direct Salary, Indirect Cost and Over-time Cost (2+2a)						\$15,361	
4. TRAVEL & SUBSISTENCE						\$500	
5. OTHER NON-SALARY COST						\$460	
6. SUBTOTAL: Direct Non-Salary Cost (4+5)						\$960	
7. SUBCONTRACTORS Management Fee included above						\$0 \$0	
8. TOTAL CONTRACT COST (3+6+7)						\$16,321	
9. FIXED FEE - 10.3 %						\$1,582	
10. TOTAL CONTRACT PRICE (8+9)						\$17,904	

PROJECT MANAGER ENGINEER \_\_\_\_\_

DATE \_\_\_\_\_



ENGINEER: MALCOLM PIRNIE, INC  
 NYSDC CONTRACT/WA #: D - 002852 - 15.0  
 PROJECT NAME: BB&S R/FS  
 MPI PROJECT #: 0266-323  
 NYSDC TASK #/NAME: 4-Phase II RI

**SCHEDULE 2.11 (g)**

DATE PREPARED: 08-Feb-96

**MONTHLY COST CONTROL REPORT  
 SUMMARY OF FISCAL INFORMATION**

BILLING PERIOD: 00/00/00 - 00/00/00  
 MPI STATEMENT #: n  
 DEC VOUCHER #: n

% of BUDGET COMPLETE: #DIV/0!

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD (CAP #n-month)	B PAID TO DATE (thru CAP #n-month)	C TOTAL COSTS INCURRED TO DATE (A + B)	D ESTIMATED COSTS TO COMPLETION (F-C)	E ESTIMATED TOTAL CONTRACT PRICE (A+B+D)	F APPROVED BUDGET (Date)	G ESTIMATED UNDER/OVER (F-E)
1. DIRECT SALARY COST						\$0	
1a. INDIRECT COST - 1.538 %						\$0	
2. SUBTOTAL: Billable Labor Cost (1 + 1a)						\$0	
2a. OVER-TIME SALARY						\$0	
3. SUBTOTAL: Direct Salary, Indirect Cost and Over-time Cost (2+2a)						\$0	
4. TRAVEL & SUBSISTENCE						\$0	
5. OTHER NON-SALARY COST						\$0	
6. SUBTOTAL: Direct Non-Salary Cost (4+5)						\$0	
7. SUBCONTRACTORS Management Fee included above						\$0	
8. TOTAL CONTRACT COST (3+6+7)						\$0	
9. FIXED FEE - 10.3 %						\$0	
10. TOTAL CONTRACT PRICE (8+9)						\$0	

PROJECT MANAGER ENGINEER

DATE

ENGINEER: MALCOLM PIRNIE, INC  
 NYSDC CONTRACT/WA #: D - 002852 - 15.0  
 PROJECT NAME: BB&S R/FS  
 MPI PROJECT #: 0266-323  
 NYSDC TASK #/NAME: 5-Focused FS

**SCHEDULE 2.11 (g)**

DATE PREPARED: 08-Feb-96

**MONTHLY COST CONTROL REPORT  
 SUMMARY OF FISCAL INFORMATION**

BILLING PERIOD: 00/00/00 - 00/00/00  
 MPI STATEMENT #: n  
 DEC VOUCHER #: n

% of BUDGET COMPLETE: 0%

EXPENDITURE CATEGORY	A COSTS CLAIMED THIS PERIOD (CAP #n-month)	B PAID TO DATE (thru CAP #n-month)	C TOTAL COSTS INCURRED TO DATE (A + B)	D ESTIMATED COSTS TO COMPLETION (F-C)	E ESTIMATED TOTAL CONTRACT PRICE (A+B+D)	F APPROVED BUDGET (Date)	G ESTIMATED UNDER/OVER (F-E)
1. DIRECT SALARY COST						\$12,420	
1a. INDIRECT COST - 1.538 %						\$19,103	
2. SUBTOTAL: Billable Labor Cost (1+1a)						\$31,523	
2a. OVER-TIME SALARY						\$0	
3. SUBTOTAL: Direct Salary, Indirect Cost and Over-time Cost (2+2a)						\$31,523	
4. TRAVEL & SUBSISTENCE						\$500	
5. OTHER NON-SALARY COST						\$1,018	
6. SUBTOTAL: Direct Non-Salary Cost (4+5)						\$1,518	
7. SUBCONTRACTORS Management Fee included above						\$358 \$0	
8. TOTAL CONTRACT COST (3+6+7)						\$33,398	
9. FIXED FEE - 10.3 %						\$3,247	
10. TOTAL CONTRACT PRICE (8+9)						\$36,645	

PROJECT MANAGER ENGINEER \_\_\_\_\_

DATE \_\_\_\_\_

ENGINEER: MALCOLM PIRNIE, INC  
 NYSDEC CONTRACT #: D - 002852  
 NYSDEC WA #: WA # 15.0  
 MPI PROJECT #: 0266-323  
 PROJECT NAME: BB&S RUFS

**SCHEDULE 2.11 (g) - Supplemental**

DATE PREPARED: 08-Feb-96

**SUBCONTRACTOR COST CONTROL REPORT  
 SUMMARY OF FISCAL INFORMATION  
 Cost-Plus-Fixed-Fee and Unit Price Subcontractors**

BILLING PERIOD: m/d/y - m/d/y  
 MPI STATEMENT #: n  
 DEC VOUCHER #: n

SUBCONTRACT NAME	A	B	C	D	E	F	G	H	TOTAL COSTS TO DATE (C + F + H)
	SUBCONTRACTOR COSTS								
	MANAGEMENT FEE								
	CURRENT COSTS, INCLUDES RESUBMITTALS	PAID TO DATE	TOTAL COSTS TO DATE (A + B)	APPROVED BUDGET	MNGT. FEE BUDGET (Subs >= \$10,000)	FEE THIS PERIOD	PENDING FEES	FEE PAID TO DATE	
<b>Cost - Plus - Fixed - Fee Subcontractors</b>									
1. Edward O. Watts, P.E., P.C. Professional Services				\$41,409.93	- N / A -				
2. Vendor Unassigned Services unassigned				\$0.00	- N / A -				
3. Vendor Services				\$0.00	- N / A -				
<b>Subtotal - CPFF Subs:</b>				<b>\$41,409.93</b>	<b>- N / A -</b>				
<b>Unit Price Subcontractors</b>									
1. Engineering & Environment Analytical Services				\$55,235.00	\$2,761.75				
2. A/E Blueprinting Inc. Repro. Services				\$1,123.20	\$0.00				
3. SJB Services, Inc. Drilling Services				\$29,129.00	\$1,456.45				
4. Nancy Potak Data Validation				\$5,905.25	\$0.00				
5. Unassigned Unassigned				\$0.00	\$0.00				
<b>Subtotal - Unit Price Subs:</b>				<b>\$91,392.45</b>	<b>\$4,218.20</b>				
<b>TOTAL</b>				<b>\$132,802.38</b>	<b>\$4,218.20</b>				
<b>TOTAL Budget</b>				<b>\$137,020.58</b>					

PROJECT MANAGER ENGINEER \_\_\_\_\_

DATE \_\_\_\_\_

- NOTES: (1) Costs listed in Columns A, B, C & D do not include any management fee costs.  
 (2) Management fee is applicable to only properly procured, satisfactorily completed, unit price subcontracts over \$10,000.  
 (3) 'TOTAL' line, Column I should equal Line 7 (subcontracts), Column C of Summary of Fiscal Information Cost Control Report.

**APPENDIX A**

**QUALITY ASSURANCE PLAN  
FOR REMEDIAL INVESTIGATION**

## **11.0 FIRE PREVENTION AND PROTECTION**

### **11.1 GENERAL APPROACH**

---

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by regulatory (DEC) authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper site preparation and safe storage of combustible and flammable materials;
- Availability of coordination with private and public fire authorities;
- Adequate job-site fire protection and inspections for fire prevention; and
- Adequate indoctrination and training of employees.

### **11.2 EQUIPMENT AND REQUIREMENTS**

---

- Fire extinguishers will be provided by the Subcontractor(s);
- Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. As a minimum, all extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary; and
- Immediately after each use, fire extinguishers will be either recharged or replaced.

### **11.3 FLAMMABLE AND COMBUSTIBLE SUBSTANCES**

---

- All storage, handling or use of flammable and combustible substances will be under the supervision of qualified persons; and

- All tanks, containers and pumping equipment, whether portable or stationary, which are used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the National Fire Protection Association.
- If the LEL exceeds 10% for any compound, fans will be used to dissipate volatile/combustible gases and to minimize the explosion hazard during drilling/excavation activities. In addition, % O<sub>2</sub>/explosive gas monitoring will be conducted throughout the drilling/excavation operations.

---

**QUALITY ASSURANCE PLAN FOR  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)**

**NEW YORK STATE SUPERFUND STANDBY CONTRACT  
BB&S TREATED LUMBER SITE  
SPEONK, LONG ISLAND**

**WORK ASSIGNMENT D-002852-15**

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**Prepared for:  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF HAZARDOUS WASTE REMEDIATION**

**JANUARY 1996**

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**Conrad Tufel  
Quality Assurance Officer**

---

**Anne Marie C. McManus, P.E.  
Project Manager**

---

**John Isbister, CPG  
Quality Assurance Manager**

**MALCOLM PIRNIE, INC.**

**S-3515 Abbott Road  
P. O. Box 1938  
Buffalo, New York 14219**

**QUALITY ASSURANCE PLAN FOR REMEDIAL INVESTIGATION  
BB&S TREATED LUMBER SITE**

**TABLE OF CONTENTS**

	<b>Page</b>
1.0 QUALITY ASSURANCE PLAN .....	1
1.1 QUALITY ASSURANCE OBJECTIVES .....	1
1.1.1 Accuracy and Precision .....	1
1.1.2 Completeness .....	2
1.1.3 Representativeness .....	2
1.1.4 Comparability .....	2
1.1.5 Data Usability .....	2
1.2 SAMPLING PROCEDURES .....	3
1.3 SAMPLE CUSTODY .....	4
1.4 CALIBRATION PROCEDURES AND FREQUENCY .....	4
1.5 ANALYTICAL PROCEDURES .....	5
1.6 DATA REDUCTION, VALIDATION AND REPORTING .....	5
1.6.1 Field Activities .....	5
1.6.2 Laboratory Analysis .....	7
1.7 INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY .....	7
1.8 PERFORMANCE AND SYSTEM AUDITS .....	8
1.9 PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES .....	8
1.9.1 Field Equipment .....	8
1.9.2 Laboratory Equipment .....	9
1.10 QUALITY CONTROL OF DATA .....	9
1.11 CORRECTIVE ACTION .....	10
1.12 QUALITY ASSURANCE REPORTS TO MANAGEMENT .....	10

**LIST OF TABLES**

<b>Table No.</b>	<b>Description</b>	<b>Follows Page</b>
1-1	Quality Assurance Plan Checklist .....	1
1-2	Quality Control Analysis and the Acceptance Criteria for the On-Site Laboratory .....	8



## **1.0 QUALITY ASSURANCE PLAN**

This Quality Assurance (QA) Plan presents, in specific terms, the policies, organizations, objectives, functional activities, and specific QA and quality control (QC) activities designed to achieve the data quality goals of the BB&S Treated Lumber Site Remedial Investigation/Feasibility Study (RI/FS). This plan describes the elements that are considered to be an essential part of a QA Plan as defined by the USEPA Office of Research and Development. These elements and their location in this document are summarized in Table 1-1.

The QA applicable to both the field sampling activities and the laboratory analysis of these samples is addressed in this document. Laboratory analyses and QA/QC procedures will be in accordance with either the 1991 NYSDEC ASP Contract Laboratory Protocol (CLP) or the USEPA SW-846 methodology. Engineering and Environment, Inc. (EEI), a standby MBE laboratory, will be used to analyze the samples collected during the RI task on-site in accordance with the 1991 ASP/CLP Methods methodology.

### **1.1 QUALITY ASSURANCE OBJECTIVES**

---

The QA sample collection and analysis objectives are stated in terms of precision, accuracy, completeness, representativeness and comparability.

#### **1.1.1 Accuracy and Precision**

The QA objective for accuracy and precision of laboratory analytical data is in compliance with the specific requirements for these criteria defined in the CLP Statement of Work (SOW) and USEPA SW-846. Accuracy will be determined on the basis of blank sample analysis and surrogate recoveries from spiked samples. Precision will be determined in terms of the coefficient of variance based on duplicate sample analysis. The procedures for these determinations are specified in the CLP Statement of Work and USEPA SW-846.

**TABLE 1-1**  
**QUALITY ASSURANCE PLAN CHECKLIST**

<b>QA Plan Element</b>	<b>Location</b>
(1) Title page with provision for approval signatures	Front Sheet
(2) Table of contents	Table of Contents
(3) Project description	Section 1.0
(4) Project organization and Responsibility	Work Plan Section 5.0
(5) QA objectives for measurement data in terms of precision, accuracy, completeness, representativeness and comparability	Section 1.1
(6) Sampling procedures	Appendix C
(7) Sample custody	Appendix C
(8) Calibration procedures and frequency	Section 1.4
(9) Analytical procedures	Section 1.5
(10) Data reduction, validation and reporting	Section 1.6
(11) Internal quality control checks and frequency	Section 1.7
(12) Performance and system audits and frequency	Section 1.8
(13) Preventive maintenance procedures and schedules	Section 1.9
(14) Specific routine procedures to be used to assess data precision, accuracy and completeness of specific measurement parameters involved	Section 1.10
(15) Corrective action	Section 1.11
(16) Quality assurance reports to management	Section 1.12

### **1.1.2 Completeness**

The QA objective for completeness is to collect and analyze all environmental samples in a manner such that valid data is obtained from 100% of the samples. Achievement of this objective will rely on the use of strict sample identification and custody procedures, use of standard reference materials, proper instrument calibration and maintenance, analysis of quality control samples, performance audits, and corrective action when QC acceptance criteria are exceeded.

### **1.1.3 Representativeness**

An objective of the RI sampling task program is the collection of samples that are representative of the matrix (i.e., groundwater, soil, etc.) from which they were collected. Achievement of this objective will rely on the use of sampling procedures, as described in Section 3.0, that have been designed with the goal of obtaining representative samples.

### **1.1.4 Comparability**

The QA objective for comparability is the generation of site characterization data that can be used to make valid comparisons with other data that may be generated in the future at this or other sites. The objective also involves the analysis of the environmental samples collected during the RI task in a manner that produces results comparable to the results that would be obtained by another laboratory using the same analytical procedure. This objective is achieved by the use of standard materials traceable to the National Bureau of Standards; the use of accepted procedures for well installation, sample collection and analysis, etc.; and analysis of quality control samples to validate the analytical results.

### **1.1.5 Data Usability**

The method for evaluating data usability will be in general accordance with the procedures outlined in the USEPA publication "Guidance for Data Usability in Risk Assessment Interim Final." Malcolm Pirnie will evaluate the usability of the data based on the following criteria:

- Documentation
- Data Sources
- Analytical Methods
- Data Review
- Data Quality Indicators (completeness, comparability, representativeness, precision and accuracy)

In addition, a usability report will be prepared by the project QA Officer. Elements of the data usability report will include, but not be limited to, the following:

- Evaluation of analytical results as they relate to site history and previous analytical data collected at the site.
- Evaluation of potential field and/or laboratory contamination and any impact on the analytical results from such contamination.
- Evaluation of compliance and/or noncompliance with the 1991 NYSASP or USEPA SW-846 and justification for usage of both compliant and noncompliant data.
- Identification of data gaps (missing data) and recommendations for resampling and/or selecting difference sampling location.
- Recommendations for expanding or decreasing the sampling program.

## **1.2 SAMPLING PROCEDURES**

---

The procedures that will be used for the collection, handling, preservation and analysis of samples are presented in Section 3.0 and Appendix C of the Remedial Investigation/Feasibility Study Work Plan.

**1.3 SAMPLE CUSTODY**

---

Immediately following sample collection, each sample container will be marked with the following information:

- Sample Code
- Project Number
- Date/Time
- Sample Type
- Sampler's Initials

The sample code will indicate the site location, media sampled, and sample station.

After sample identification information has been recorded, the sample will be prepared for shipment to EEI laboratory or off-site laboratory. All samples will be delivered to the laboratory 24 to 48 hours from the date of collection. Each sample sent to an off-site laboratory label will be covered with waterproof clear plastic tape to preserve its integrity. Samples will be recorded and tracked under strict chain-of-custody protocols. In the field, each sample will be sealed and checked for proper labeling. Samples will then be packed into coolers with ice and shipped to the laboratory. The Chain-of-Custody form will be signed and dated by the person who collected the samples, the person the samples were relinquished to for transport to the laboratory, and the laboratory sample controller/custodian who receives the samples. Sample labeling and sample shipping/custody procedures are described in Appendix C.

**1.4 CALIBRATION PROCEDURES AND FREQUENCY**

---

The field instruments that will be used to make measurements in the field during the field investigation are the following:

- Field pH meter
- Field conductivity meter
- Explosimeter/%O<sub>2</sub> meter
- Hnu photoionization analyzer (10.2 eV lamp)
- Turbidity meter

The procedures that will be used to calibrate and maintain these instruments are presented in Appendix C.

Laboratory instrument calibration requirements for sample analyses are specifically defined in Exhibit D of the NYSDEC 1991 ASP and in the specific SW-846 methodology to be employed.

## **1.5 ANALYTICAL PROCEDURES**

---

The procedures that will be used for chemical analysis of the environmental samples collected during the RI task are presented in Section 3.0 of the Phase II Remedial Investigation/Feasibility Study Work Plan. CLP required quantitation limits are presented in Exhibit C of the NYSDEC 1991 ASP.

## **1.6 DATA REDUCTION, VALIDATION AND REPORTING**

---

### **1.6.1 Field Activities**

The results of all field measurements and associated calculations will be recorded on standard forms. These forms are presented in the Standard Operating Guidelines included in this Work Plan (see Appendix C).

Separate field logs will also be maintained for each of the following activities:

- Soil borings and Hydropunch sampling
- Collection of environmental samples (i.e., groundwater and soil)

During all activities, the following general information will be recorded in each log book or field log:

1. Date
2. Crew members
3. Meteorological conditions
4. Brief description of field activities conducted for date indicated
5. Location where work is performed
6. Problems encountered and corrective actions taken

7. Field measurements or descriptions made
8. Modifications made to Work Plan

The following additional information will be recorded during drilling activities:

1. Drill rig type used
2. Documentation of types and quantities of materials used
3. Record downtime and the periods of time that work is performed at the various levels of personnel protection (i.e., level B, C, or D)
4. Description of soil or rock strata encountered
5. Diagram of well construction

The following information will be recorded by the sampling team leader and/or field technicians during the collection of samples:

1. Sample locations and summary of samples collected
2. Completeness of the sampling effort (e.g., were all the samples collected that were intended to be collected and if not, what were the reasons?)
3. Chain-of-custody information
4. Results of field measurements
5. Results of field instrument calibrations

Original forms and field notebooks will be placed in the project record file that will be maintained at the Engineer's Buffalo office.

Data validation will be facilitated by adherence to Standard Operating Guidelines identified for the performance of all field activities calibration checks on all field instruments at the beginning and end of each day of use, and manual checks of field calculations.

### **1.6.2 Laboratory Analysis**

The laboratory procedures for data reduction, validation and reporting for all chemical parameters included on the NYSDEC Target Compound List (TCL) and Target Analyte List (TAL) and those listed in the particular SW-846 methodology will be in accordance with the specific requirements identified in Exhibit B of the ASP and USEPA SW-846 for off-site analyses.

## **1.7 INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY**

---

Quality control sample analyses that will be performed during this project to document the acceptability of the data will include the following:

- Trip blank
- Equipment blank
- Matrix spike (MS)
- Matrix spike duplicate (MSD)
- Method blank

The frequency of QC sample analysis for all analyses will be in accordance with the particular methodology requirements as summarized below.

Trip blanks will accompany sample bottles into the field and be returned to the off-site laboratory with the samples collected. One (1) aqueous trip blank will be collected and analyzed for volatile organics each day that samples to be analyzed for volatiles by the off-site laboratory are collected in the field. Preparation of trip blanks will involve the placement of analyze-free laboratory water into appropriate precleaned sample bottles. No soil/sediment trip blanks will be obtained.

An equipment blank (rinsate blank) will be collected for each type of sampling device used during sample collection. Preparation of equipment blanks will involve the placement of laboratory analyze-free water in the appropriately decontaminated sampling device and subsequent filling of appropriate sample bottles. A total of two (2) equipment blanks will be collected during the soil boring program. Groundwater samples will be



collected dedicated disposal polyethylene bailers; therefore no equipment blanks will be analyzed for groundwater sampling.

The off-site laboratory will perform one matrix spike and one matrix spike duplicate analysis for each 20 samples of a similar matrix (soil or groundwater). Matrix spikes will be carried through the entire analytical process from initial sample preparation to final analyses.

The off-site laboratory will prepare and analyze one (1) laboratory reagent blank (method blank) for each group of samples of similar matrix (e.g., water, soil), processed by a similar method (e.g., separatory funnel or continuous liquid-liquid extraction, acid digestion, etc.), and a similar concentration level (for soil samples only) at the beginning of the day and after every 10 samples.

Quality control sample analytical results will be reported on standard forms in conjunction with data acceptance criteria. The acceptance criteria applicable to this project are specified by the NYS ASP (Reference 8) and in Table 1-2.

## **1.8 PERFORMANCE AND SYSTEM AUDITS**

---

Performance and system audits that will be conducted at a minimum to ascertain the potential of all analytical measurements systems to generate data that are representative, valid, and meet completeness requirements are described in the subcontracted laboratory's QA/QC Plan.

## **1.9 PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES**

---

### **1.9.1 Field Equipment**

Maintenance procedures that will be employed to assure the proper operation of all field equipment is presented in Appendix C.

TABLE 1-2

**QUALITY CONTROL ANALYSIS AND THE ACCEPTANCE CRITERIA  
FOR THE ON-SITE LABORATORY**

1. **Initial Calibration** - A 3-point initial calibration will be conducted on the analytical system prior to project initiation. The instrument will be calibrated and the correlation coefficient (r) checked for each analyte. For all analytes detected the (r) value is required to be greater than 0.990 or recalibration will be performed.
2. **Internal Standards Performance** - An internal standard will be conducted at the beginning of each day. The internal standard area count will not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard will not vary more than  $\pm 30$  seconds from the associated continuing calibration standard. Any values outside the control limits will be noted on the QC forms.
3. **Calibration Check Standards** - At the beginning of each day, after every 10 samples and at the end of each day a mid-point calibration check standard will be analyzed to verify that the analytical sensitivity did not change from the initial calibration. After running this standard the analyst will calculate the % Recovery (%R) value for each analyte and compare it to the 75-125% criteria. Any %R value outside the control limits will be noted on the QC form. If significant variances are observed, the system will be recalibrated.
4. **Contract-Required Detection Limit (CRDL) Standards for ICP and AA** - An ICP standard will be analyzed at a concentration two (2) times the CRDL [or at the CRDL for AA] or two times the instrument detection limit, whichever is greater. The standard will be analyzed at the beginning and end of each sample analysis run, or a minimum of twice per eight (8) hour shift, whichever is more frequent.
5. **QC Standards** - A QC standard will be analyzed on a daily basis and used to verify the accuracy of the calibration standards. The QC standard will be a standard from a second source, other than the calibration standards. %R values will be calculated and compared to the 75-125% criteria.
6. **ICP Interference Check Sample (ICS)** - An ICS will be analyzed at the beginning and end of each analytical run (or a minimum of twice per eight-hour work shift). The ICS consists of two solutions, A and AB. Solution A contains the interferents and solution AB contains the analytes mixed with the interferents. The solutions will be analyzed consecutively.
7. **Method Blanks** - A sample of analyte-free water will be processed at the beginning of the day and after every 10 sample analyses to verify that the analytical system is contaminant-free. Concentrations of detected analytes must be less than half the method detection limit. Low concentrations of contaminants that have been detected in the blank are labeled with a "B". Significant contaminant levels necessitate corrective action, i.e. cleaning of the instrument.
8. **Surrogate Standards** - Surrogate standards will be added to all samples, standards and blanks to measure the potential for matrix interferences. %R values will be calculated (appear in comments section of the data pages) and compared to the 80-120% criteria. Small deviations are marked as outside control limits while large deviations will necessitate reanalysis.
9. **Duplicates** - Ten percent (10%) of all samples will be analyzed in duplicate on a daily basis to determine the precision of the analyses. Relative Percent Difference (RPD) values will be calculated and compared to the 30% acceptance limit. Values over this level require corrective action if significant, otherwise they are highlighted as outside QC limits.

**TABLE 1-2 (Continued)**

**QUALITY CONTROL ANALYSIS AND THE ACCEPTANCE CRITERIA  
FOR THE ON-SITE LABORATORY**

10. **Matrix Spike Analyses** - Ten percent (10%) of the samples analyzed on each day will be spiked with a standard and %R values calculated. The %R values are compared against the 75-125% criteria.
11. **Laboratory Control Sample (LCS) Analysis** - An aqueous LCS will be prepared and analyzed for every group of aqueous and soil samples in a sample delivery group, or for each batch of samples digested, whichever is more frequent. The % recovery must fall within the control limits established by the EPA. If the % recovery does not meet criteria, the laboratory will take corrective action such as analyzing another LCS after instrument adjustment.
12. **Furnace Atomic Absorption (AA) QC Analysis** - All furnace AA analyses (As, Se, and Ph) will be duplicate injections. The duplicate injection results must agree within 20% RSD. If the results do not agree within 20% RSD, the sample will be rerun. In addition, a post-digestion spike will be run for each sample. The recovery of the analyte in each post-digestion spike will be within the control limit (85-115%). If the recovery of the analyte is outside of this criteria, the analyte will be quantitated using the Method of Standard Addition (MSA), depending on sample absorbance. If the sample absorbance is >50% of the post-digestion spike absorbance and the spike recovery is outside the 85-115% control limit, the sample result will be calculated using MSA.

### **1.9.2 Laboratory Equipment**

Preventive maintenance will be performed on critical laboratory instruments as described in the subcontracted laboratory's QA/QC Plan.

## **1.10 QUALITY CONTROL OF DATA**

---

A number of general and specific measures will be employed to ensure that the analytical data produced during this project are generated within known and acceptable limits of accuracy and precision. Control measures will include the following:

- Proper cleaning of sample containers.
- Sample bottles for ASP-CLP analysis shall be of traceable quality.
- Use of formal written sample labeling, logging and chain-of-custody.
- Use of USEPA-accepted methods for sample preservation.
- Use of laboratory reagents that meet or exceed American Chemical Society "Analytical Reagent Grade" quality standards.
- Use of laboratory water that meets or exceeds quality standards for Type I water.
- Use of pesticide grade solvents for sample extractions.
- Use of high purity or ultra high purity gasses for gas chromatographic procedures.
- Proper cleaning of laboratory glassware.

These measures are addressed in the subcontracted laboratory's QA/QC Plan.

Specific QC measures will involve the analysis of QC samples and reporting of results in conjunction with applicable acceptance criteria. The QC sample analyses that will be performed are discussed in Section 1.8.

**1.11 CORRECTIVE ACTION**

---

Whenever calibration checks of field or laboratory instruments fail to compare with initial calibrations and/or laboratory data precision and/or accuracy acceptance limits are exceeded, corrective actions will be implemented. These actions will include:

- Recalibration or standardization of instruments
- Acquiring new standards
- Repairing instrumentation
- Replacing instruments that cannot be repaired
- Reanalyzing samples for which unacceptable or suspect analytical results were obtained.

If problems are encountered which require corrective action, these problems will be addressed and resolved before additional samples are analyzed in order to minimize the quantity of re-analyses required.

**1.12 QUALITY ASSURANCE REPORTS TO MANAGEMENT**

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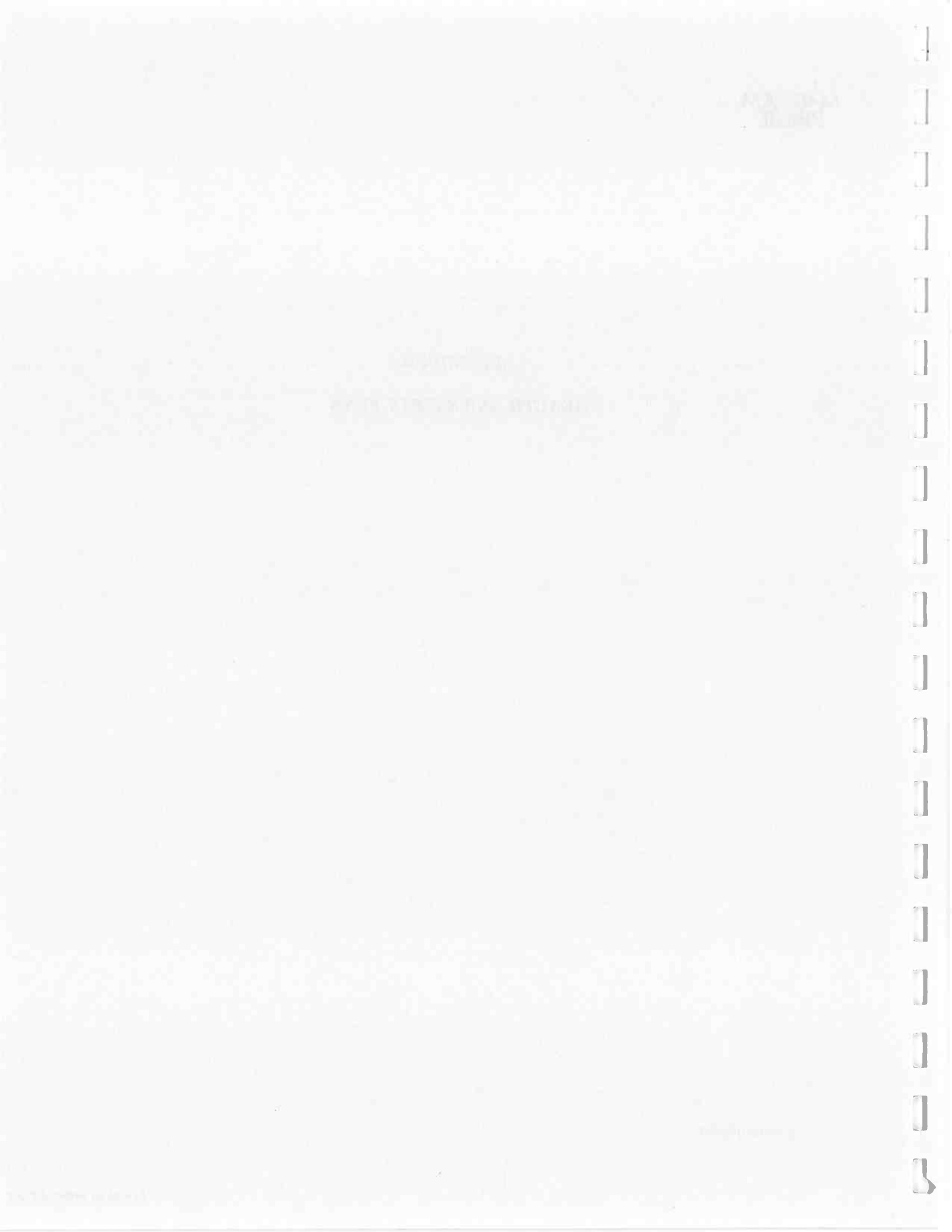
Periodically during the performance of this investigation, field and laboratory personnel will be required to report the performance of all measurement systems to management. Field personnel will report to the Engineer's QA/QC Officer. Laboratory personnel reporting requirements are defined in the lab's QA/QC Plan.

The frequency of reporting will be daily or weekly as appropriate during the period of time that measurements are being made in the field and/or laboratory. Reporting of measurement system performance will generally be verbal. However, if a problem requiring corrective action is encountered, a formal written report will be prepared. If a QC problem arises in the laboratory, the laboratory operation manager will immediately contact the Engineer's QA/QC Officer to discuss an appropriate corrective action. Whenever a laboratory QA/QC problem requiring corrective action rises, the laboratory operation

manager will prepare a formal written report to document the nature of the QA/QC problem and the corrective action(s) taken to resolve the problem. This report will be submitted as soon as possible to the Engineer.

Any deviations from the analytical protocols in this work plan must have prior approval by the NYSDEC Project Manager, Sally Dewes, or NYSDEC Quality Assurance Officer, Christine McGrath. Malcolm Pirnie's Quality Assurance Officer is responsible for monitoring that the laboratory maintains NYSDOH ELAP CLP and general certification for the analysis required for this project.

**APPENDIX B**  
**HEALTH AND SAFETY PLAN**





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**HEALTH AND SAFETY PLAN FOR  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

**NEW YORK STATE SUPERFUND STANDBY CONTRACT  
BB&S TREATED LUMBER  
SPEONK, LONG ISLAND**


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**WORK ASSIGNMENT D-002852-15**

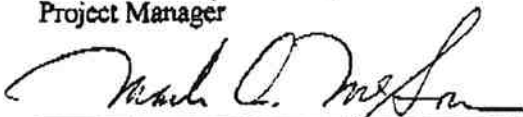
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**NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION  
DIVISION OF HAZARDOUS WASTE REMEDIATION**

**JANUARY 1996**

  
Judith Vangalis  
Site Health and Safety Officer

  
Anne Marie C. McManus, P.E.  
Project Manager

  
Mark McGowan, C.I.H.  
Corporate Health & Safety Manager

**MALCOLM PIRNIE, INC.**

**S-3515 Abbott Road  
P. O. Box 1938  
Buffalo, New York 14219**

We, the undersigned, being employed by Malcolm Pirnie, Inc., have read in full and understand this Health and Safety Plan:

_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date
_____ Signature	_____ Print	_____ Date

**HEALTH AND SAFETY PLAN FOR REMEDIAL INVESTIGATION  
BB&S TREATED LUMBER SITE****TABLE OF CONTENTS**

	<u>Page</u>
1.0 INTRODUCTION .....	1
1.1 GENERAL .....	1
1.2 ORGANIZATION .....	1
1.3 BACKGROUND .....	5
1.4 REMEDIAL INVESTIGATION OBJECTIVES .....	5
1.5 SCOPE OF REMEDIAL INVESTIGATION .....	6
2.0 HAZARD EVALUATION .....	7
2.1 SUMMARY OF PROJECTED RISKS .....	7
2.2 CHEMICAL HAZARDS .....	7
2.3 PHYSICAL HAZARDS .....	9
3.0 MEDICAL SURVEILLANCE .....	11
4.0 EMPLOYEE TRAINING PROGRAM .....	13
5.0 SAFE WORK PRACTICES .....	15
6.0 PERSONAL PROTECTIVE EQUIPMENT .....	19
6.1 PROTECTION LEVELS .....	19
7.0 ENVIRONMENTAL MONITORING .....	21
7.1 GENERAL APPROACH .....	21
7.1.1 On-Site Monitoring .....	21
7.2 MONITORING ACTION LEVELS .....	22
7.2.1 On-Site Levels .....	22
7.2.7	
Community Air Monitoring .....	24
7.2.2.1	
Vapor Emission Response Plan .....	25
7.2.2.2	
Major Vapor Emission .....	26
7.2.2.3	
Major Vapor Emission Response Plan .....	26
8.0 HEAT/COLD STRESS MONITORING .....	28
8.1 HEAT STRESS MONITORING .....	28
8.2 COLD STRESS MONITORING .....	30

**HEALTH AND SAFETY PLAN FOR REMEDIAL INVESTIGATION  
BB&S TREATED LUMBER SITE**

**TABLE OF CONTENTS (continued)**

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9.0	WORK ZONES AND SITE CONTROL .....	32
10.0	DECONTAMINATION PROCEDURES .....	34
10.1	PERSONAL DECONTAMINATION FOR MPI EMPLOYEES .....	34
10.2	DECONTAMINATION FOR MEDICAL EMERGENCIES .....	35
10.3	DECONTAMINATION OF FIELD EQUIPMENT .....	36
11.0	FIRE PREVENTION AND PROTECTION .....	37
11.1	GENERAL APPROACH .....	37
11.2	EQUIPMENT AND REQUIREMENTS .....	37
11.3	FLAMMABLE AND COMBUSTIBLE SUBSTANCES .....	38
12.0	EMERGENCY INFORMATION .....	39

**LIST OF FIGURES**

<b>Figure No.</b>	<b>Description</b>	<b>Follows Page</b>
1-1	Vicinity Map .....	4

**LIST OF TABLES**

<b>Table No.</b>	<b>Description</b>	<b>Follows Page</b>
2-1	Organic Compounds Detected .....	7
2-2	Toxicity and Exposure Data .....	7
2-3	Potential Routes of Exposure to Contaminants of Concern .....	10
6-1	Required Levels of Protection .....	18

**LIST OF ATTACHMENTS**

**Attachment**

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- 1 Protection Ensembles
- 2 Emergency Response Plan

## **1.0 INTRODUCTION**

### **1.1 GENERAL**

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In accordance with Malcolm Pirnie, Inc. corporate policies and OSHA regulations, this Health and Safety Plan (HASP) describes specific health and safety practices and procedures to be used during the Remedial Investigation/Feasibility Study (RI/FS) at the BB&S Treated Lumber Site, located in Speonk, Long Island. This HASP covers Malcolm Pirnie employees and activities, and is not intended to cover the activities of other employers on the site. Malcolm Pirnie, Inc. accepts no responsibility for the Health and Safety of subcontractor personnel. This HASP presents information on known site health and safety hazards and includes the equipment, materials and procedures that will be used to eliminate or control these hazards and is based on an assessment of potential health and safety hazards at the site using available historical information. Environmental monitoring will be performed during the course of field activities to provide real-time data for an on-going assessment of potential physical and chemical hazards.

Malcolm Pirnie personnel involved with geologic surveys, multi-media environmental sampling, and other remedial investigation activities will be required to comply with this Health and Safety Plan. Tasks on this site will be completed using methods that meet the requirements set forth in the OSHA Health and Safety regulations contained in 29 CFR 1910 and 1926. Construction subcontractor(s) conducting operations are required to provide their own Health and Safety Plans.

### **1.2 ORGANIZATION**

---

The Malcolm Pirnie Project Manager, the Health and Safety Officer and the Site Health and Safety Coordinator (or his designee) identified below will determine and enforce compliance.

■ **PROJECT MANAGER**

Name:	Anne Marie McManus, P.E.
Telephone:	Office: (716) 828-1300
	Home: (716) 667-3081

• **CORPORATE HEALTH AND SAFETY MANAGER:**

Name:	Mark McGowan
Telephone:	Office: (914) 694-2100
	After Hours: (800) 478-6870

• **SITE SAFETY TECHNICIAN**

Name:	Judith Vangalio
Telephone:	Office: (716) 828-1300
	Home: (716) 662-5404

• **SITE SAFETY TECHNICIAN**

Name:	Chuck Trione
Telephone:	Office: (201) 529-4700
	Home: (201) 492-2198

The following roles have been identified for Malcolm Pirnie project personnel:

**Project Manager** - The Project Manager has full responsibility for implementing and executing an effective program of employee protection and accident prevention. She may delegate authority to expedite and facilitate any application of the program.

**Corporate Health and Safety Manager** - The Corporate Health and Safety Manager serves as the administrator of the corporation's health and safety program. He is responsible for ensuring that Malcolm Pirnie field personnel are properly trained, that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134(b)(10)), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.

The Corporate Health and Safety Manager will also serve as scientific advisor for the duration of the project, providing guidance on data interpretation and the determination of appropriate levels of worker protection.

**Site Health and Safety Officer** - The Site Health and Safety Officer is knowledgeable in safety and worker protection techniques as they relate to the project. Responsibilities include the development of the specific provisions of this HASP, including the level of personnel protection to be employed, identification of emergency procedures, and personnel/equipment decontamination procedures. This individual will provide technical assistance to project management on problems relating to industrial hygiene and work site safety.

Any health and safety briefings required during the course of the project will be conducted by the Site Health and Safety Officer. Examples of briefings might include accident prevention, respirator refresher courses or current issues. The frequency of safety briefings will be based upon the potential hazards specific to the designated work tasks and any new information relative to such hazards which are discovered during the project.

**Site Safety Technician** - Malcolm Pirnie's Site Safety Technician will be responsible for the implementation of this HASP for Malcolm Pirnie employees at the site and for monitoring the personal exposures of employees to hazardous substances contained in air, soil or water. This will consist of spot checking workplace air sampling performed by the Subcontractor such as organic vapor monitoring and the documentation of such data. Malcolm Pirnie's Site Safety Technician will communicate directly with Malcolm Pirnie's Site Safety Technician on a regular basis to advise him/her of monitoring results and any unexpected conditions found at the site. As data are received and evaluated, the Site Health and Safety Officer will adapt this Health and Safety Plan to fit the current Malcolm Pirnie employee protection needs at the site. All affected Malcolm Pirnie employees and the Subcontractor's designated Site Health and Safety Officer will be informed of the air sampling results.

When unsafe work conditions are identified, the Site Safety Technician is authorized to order Malcolm Pirnie personnel to stop work. Resolution of all on-site health and safety problems will be coordinated through the Project Manager with assistance from the Corporate Health and Safety Manager and Site Health and Safety Officer as well as the Subcontractor's designated Health and Safety personnel.

The following roles have been designated for non-Malcolm Pirnie personnel:

**Subcontractor Site Health and Safety Officer** - The Subcontractor's Site Health and Safety Officer will be responsible for protecting the health and safety of subcontractor personnel and will provide evidence of medical clearance for subcontractor personnel. The Subcontractor's Site Health and Safety Officer will also be responsible for site security during normal work hours and will control access of non-essential personnel into the work zone.

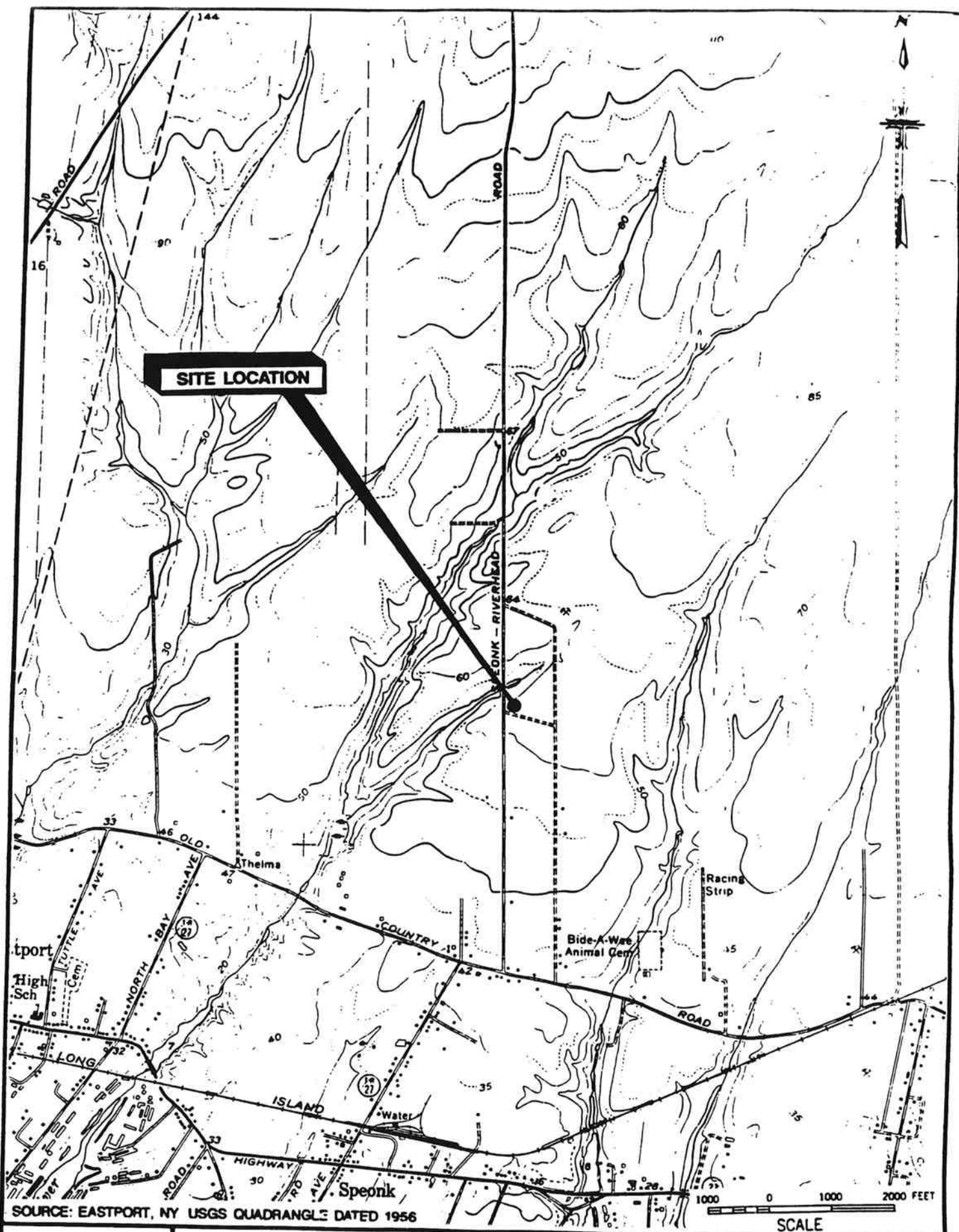
**Public Information Officer** - The Public Information Officer is responsible for answering any questions from the general public regarding the on-site activities. The Public Information Officer should be an employee of the New York State Department of Environmental Conservation (NYSDEC).

### **1.3 BACKGROUND**

---

The New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, has assigned to Malcolm Pirnie, Inc. (Work Assignment #D002852-15) a Remedial Investigation/Feasibility Study (RI/FS) at the BB&S Treated Lumber Corporation (1-52-123), Speonk-Riverhead Road, Town of Speonk, Long Island, New York (Figure 1). The BB&S Treated Lumber Corporation is an active lumber preservative operation that has been in operation for over 12 years. The treatment procedure uses chromate copper arsenate (CCA) as a wood preservative. Discharges of CCA to the ground have contaminated the groundwater in excess of drinking water standards for arsenic





**MALCOLM  
PIRNIE**

BB & S TREATED LUMBER  
SPEONK, NEW YORK  
**SITE LOCATION MAP**

MALCOLM PIRNIE, INC.

0266-323-100

**FIGURE 1**

(detected at concentration greater than 1,200 parts per billion) and total chromium (detected at concentrations greater than 11,000 parts per billion).

#### **1.4 REMEDIAL INVESTIGATION OBJECTIVES**

---

Primary objectives of the remedial investigation will be to establish the vertical and areal extent of contamination via sampling, summarize existing and new data, and to determine hydraulic and hydrogeologic conditions in the overburden which will better define the distribution of contaminants and contaminant migration pathways. In addition, soil and groundwater will be more fully characterized to completely assess any risks to human health and the environment, and to evaluate groundwater/soil remedial alternatives.

#### **1.5 SCOPE OF REMEDIAL INVESTIGATION**

---

Malcolm Pirnie, Inc. personnel will be responsible for the field oversight and conducting a pump test during the remedial investigation. The major activities to be completed during fieldwork as part of the Remedial Investigation/Feasibility Study include:

- Surface Soil Sampling
- Borehole Drilling (Subsurface Investigation)
- Redevelopment and Sampling of Monitoring Wells
- Hydropunch Sampling
- Aquifer Pump Test

## **2.0 HAZARD EVALUATION**

### **2.1 SUMMARY OF PROJECTED RISKS**

---

Due to the variety of potential contaminants at the site, the possibility exists that workers will be exposed to hazardous substances during field activities (see Table 2-3). The principal points of exposure would be through direct contact with contaminated fill/soils and groundwater, through the inhalation of contaminated particles or vapors. In addition, the use of drill rigs on-site will present conditions for potential physical injury to workers. Further, since work may be performed during summer/winter time periods, the potential exists for heat/cold stress to impact workers especially those wearing protective equipment and clothing.

Although no work can be considered completely risk-free, logical and reasonable precautions will be implemented to provide an adequate level of protection for workers. The integration of medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, work zones and site control, appropriate decontamination procedures and contingency planning into the project approach will minimize the chance of unnecessary exposures and physical injuries.

### **2.2 CHEMICAL HAZARDS**

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Previous effluent sampling has provided information concerning the types of contaminants which are likely to be encountered during the remedial investigation. Table 2-1 identifies contaminants determined to be present during previous effluent sampling at the site. Potential contaminants include heavy metals. Heavy metals are not generally considered a health concern unless there is a potential for inhalation or ingestion. Table 2-2 lists toxicity and exposure data for the "contaminants of concern" identified in Table 2-1. Brief descriptions of the toxicology of these materials and related health and safety guidance and criteria taken from Fate and Exposure Data for Organic Chemicals (Howard 1990) and Toxicological Profiles from the Agency for Toxic Substances and Disease Registry are provided below:

<p align="center"><b>TABLE 2-1</b></p> <p align="center"><b>HEALTH AND SAFETY PLAN</b></p> <p align="center"><b>FOR REMEDIAL INVESTIGATION</b></p> <p align="center"><b>AT BB&amp;S SITE</b></p> <p align="center"><i>COMPOUNDS DETECTED</i></p>	
<b>Chemical</b>	<b>Maximum Concentration Groundwater (ug/l)</b>
<b>Inorganic Compounds:</b>	
Copper	390
Hexavalent Chromium	1550
Arsenic	2
Zinc	180
<b>Source:</b> "Remedial Investigation Report, Haight Farm Site, Clarendon, New York, DEC Site No. 837006, Day Engineering, P.C., November 1991.	

<p align="center"><b>TABLE 2-2</b></p> <p align="center"><b>HEALTH AND SAFETY PLAN FOR REMEDIAL INVESTIGATION</b></p> <p align="center"><b>AT BB&amp;S SITE</b></p> <p align="center"><i>TOXICITY AND EXPOSURE DATA</i></p>					
<b>Contaminant of Concern</b>	<b>Inhalation Hazard</b>		<b>Dermal Hazard</b>	<b>LD<sub>50</sub> mg/kg</b>	<b>Fire/ Explosion Hazard</b>
	<b>PEL (mg/m<sup>3</sup>)</b>	<b>TLV (mg/m<sup>3</sup>)</b>			
Copper	1	1	—	—	—
Hexavalent Chromium	0.1 <sup>c</sup>	0.05	—	—	—
Arsenic	0.01	0.01	—	—	—
Zinc	*5	*10	—	—	—
<b>Notes:</b> PEL = Permissible Exposure Limit Established by OSHA, equals the maximum exposure concentration allowable for 8 hours per day @ 40 hours per week. TLV = Threshold Limit Value established by ACGIH, equals the maximum exposure concentration allowable for 8 hours per day @ 40 hours per week. C = Ceiling Level, equals the maximum exposure concentration allowable during the work day. * = Respirable function.					

- **Zinc Chloride** used as a wood preservative, may be corrosive to the skin and mucous membranes. Aqueous solutions are extremely dangerous to the eyes. Zinc may produce sensitization of the skin. Ingestion may be associated with abdominal pain, vomiting, anemia, and pancreatic damage. Target organs may include the eyes, skin, respiratory system, and cardiovascular system. Inhaling large amounts of zinc (as zinc dust or fumes) can cause a specific short-term disease called metal fume fever.
- **Hexavalent Chromium** is used as a wood preservative. Hexavalent Chromium is an irritant and corrosive to the skin and mucous membranes. Two forms of chromium, hexavalent (Cr+6) and trivalent (Cr+3) are toxic. Chromium is a potential occupational carcinogen. Acute exposures to dust may cause coughing, wheezing, headaches, pain and fever.
- **Copper** dust can cause irritation of the upper respiratory tract, a metallic taste in the mouth, nausea, and in some cases discoloration of the skin and hair. Ingestion of copper dust can irritate your nose, mouth, and eyes, and cause headaches, dizziness, nausea, vomiting and diarrhea.
- **Arsenic** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea, and pain in the stomach. Prolonged contact is corrosive to the skin and mucous membranes.

Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.

With respect to the anticipated Remedial Investigation activities defined in Section 1.2, possible routes of exposure to the above-mentioned contaminants are presented in Table 2-3.

The use of proper respiratory equipment, as outlined in Section 7.0, will minimize the potential for exposure to airborne contamination. Further, exposure to contaminants through dermal and other routes will also be minimized through the use of protective clothing (Section 6.0), safe work practices (Section 5.0), and proper decontamination procedures (Section 10.0).

<b>TABLE 2-3</b>  <b>HEALTH AND SAFETY PLAN FOR REMEDIAL INVESTIGATION AT BB&amp;S SITE</b>  <b>POTENTIAL ROUTES OF EXPOSURE TO CONTAMINANTS-OF-CONCERN</b>			
<b>Activity</b>	<b>Direct Contact with Soil</b>	<b>Direct Contact with Water</b>	<b>Inhalation of Vapors/Dust Particles</b>
Collect Surface Soil Samples	X		X
Drill Boreholes	X	X	X
Hydropunch Sampling	X	X	X
Redevelop Wells and Collect Groundwater Samples		X	X
Pump Test		X	X

Installation of monitoring wells, borehole drilling and test pit excavation at the BB&S Site may present the following physical hazards:

- The potential for physical injury during heavy construction equipment use, such as drill rigs and backhoes.
- The potential for heat/cold stress to employees during the summer/winter months (see Section 8.0).
- The potential for slip-and-fall injuries due to rough, uneven terrain.
- Potential for test pit walls to collapse.
- Potential for injury due to fire/explosion of methane and/or carbon disulfide gas released during drilling and/or test pit excavations (see Section 11).





### **3.0 MEDICAL SURVEILLANCE**

Medical monitoring, including initial employment, annual and employment termination examinations are be provided to Malcolm Pirnie employees whose work may result in potential chemical exposure or present unusual physical demands. Medical evaluations are be performed by an occupational physician designated by Malcolm Pirnie, Inc. The medical evaluations are conducted according to the Malcolm Pirnie, Inc. Medical Monitoring Program and include an evaluation of the workers' ability to use respirator protective equipment (as per 29 CFR 1910). The examination includes:

- Occupational history;
- Medical history;
- Medical review;
- Medical certification of physical requirements (sight, hearing, musculoskeletal, cardiovascular) for safe job performance; and
- Laboratory testing to include a complete blood count, white cell differential count, blood biochemistry and urinalysis.

The purposes of the medical evaluation are to: (1) determine fitness for duty on hazardous waste sites (such an evaluation is based upon the employee's occupational and medical history, a comprehensive physical examination and evaluation of the ability to work while wearing protective equipment); and (2) establish baseline medical data.

Supplemental examinations may be performed whenever there is an actual or suspected excessive exposure to chemical contaminants or upon experience of exposure symptoms, or following injuries or temperature stresses.

In conformance with OSHA regulations, Malcolm Pirnie will maintain and preserve medical records for a period of 30 years following termination of employment. Employees have access to the results of medical testing and to full medical records and analyses.

The subcontractor's Site Health and Safety Officer will be responsible for providing evidence of medical clearance for any subcontractor personnel (see Section 1.2).

## **4.0 EMPLOYEE TRAINING PROGRAM**

All employees who may be exposed to hazardous substances, health hazards, or safety hazards are adequately trained prior to engaging in any on-site work activities. At a minimum, such training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor (i.e., the branch Health and Safety Coordinator or his/her designee). This training is conducted by a qualified instructor and is specifically designed to meet the requirements of OSHA Standard 29 CFR 1910.120(e)(2). At a minimum, the initial 40-hour training course includes the following:

### **TOPICS**

- OSHA/SARA/EPA/RCRA/HCS Requirements
- Decontamination of Personnel & Equipment
- Fire, Explosion & Accident Prevention
- Respiratory Protection Selection & Use
- Preparation of Health & Safety Plans
- Emergency Preparedness & Escape
- Protective Clothing Use & Selection
- Air Monitoring & Surveillance
- Work Practices to Minimize Risk
- Waste Site Safety
- Hazard Recognition
- Medical Surveillance
- Cold & Heat Stress
- Site Entry & Set-Up
- Permissible Exposure Limits
- Site Control & Work Zones
- Chemical & Physical Hazards
- Confined Space Entry

### **WORKSHOPS/EXERCISES**

- Self-Contained Breathing Apparatus
- Air Monitoring Equipment Workshop
- Air Purifying Respirator Workshop
- Decontamination
- Qualitative/Quantitative Fit Test
- Level A/B Field Exercise
- Level B/C Field Exercise
- Air Tank Refilling Workshop

Records and certifications received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file in Malcolm Pirnie's Buffalo and White Plains corporate headquarters offices. Subcontractor(s) are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities.

Any employee who has not received adequate training and has been so certified is prohibited from engaging in on-site work activities that may involve exposure to hazardous substances, health hazards or safety hazards.

Periodic health and safety briefings will be conducted by Malcolm Pirnie's Site Health and Safety Officer for Malcolm Pirnie employees on an as-needed basis. Problems relative to respiratory protection, inclement weather, heat/cold stress or the interpretation of newly-available environmental monitoring data are examples of topics which might be covered during these briefings.

## **5.0 SAFE WORK PRACTICES**

All Malcolm Pirnie employees shall obey the following safety rules during on-site work activities conducted within the exclusion and support zones:

### **General:**

- Eating, drinking, chewing gum or tobacco, smoking, or any practice which increases the probability of hand-to-mouth transfer of contaminated material is strictly prohibited;
- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.
- Any required respiratory protective equipment and clothing **must** be worn by all personnel going on-site. Excessive facial hair (i.e., beards, long mustaches or sideburns), which interferes with the satisfactory respirator-to-face seal is prohibited;
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, crosscontamination and need for decontamination;
- Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the Pirnie occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during site work activities;
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan;
- On-site personnel shall use the "buddy" system. No one may work alone, i.e., out of earshot or visual contact with other workers in the exclusion zone;
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective site operations;
- All employees have the obligation to correct or report unsafe work conditions;

- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for Malcolm Pirnie employees, as required.
- The drilling subcontractor will employ lockout/tagout procedures when the drill rig is not in operation (i.e., after normal work hours).

The recommended general safety practices for working around the drilling Subcontractor's and/or backhoe operator's equipment (i.e. drill rigs and backhoes) are as follows:

**Subcontractor's Duties:**

- The drilling Subcontractor is responsible for the condition of his equipment and its safe operation on the site. Malcolm Pirnie personnel are responsible for their own safety when working around this equipment. The inspection will include a check for obvious structural damage, loose nuts and bolts, loose or missing guards, cable guides or protective covers, fluid leaks, damaged hoses, cables, pressure gauges or pressure relief valves, and damaged drilling tools and equipment. The equipment should also have a fire extinguisher. The subcontractors are expected to conduct daily inspections of their equipment and report any potential problems to the Malcolm Pirnie Site Safety Technician. If the condition of the equipment is considered to be unsafe based on the Subcontractor's inspection, and/or the Malcolm Pirnie Site Safety Technician's inspection, have the Subcontractor make the necessary repairs prior to beginning work. If the Subcontractor refuses to fix the equipment or is not operating the equipment safely, the job site will be closed down and the Project Manager contacted for additional instructions.
- Drilling/excavation will not be initiated without first clearing underground services such as; gas, water, telephone, sewer, hydrogen, steam, and cable T.V.
- Drill rigs and backhoes should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated. The site should also be clear to ensure the project staff can move around the heavy machinery safely.
- Slippage is one of the most common causes of accidents around drill rigs and test pits. Drainage should be provided to divert mud and water away from the construction site.

- The Subcontractor should keep the construction site tidy. This will prevent personnel from tripping and will allow for fast emergency exit from the site.
- A drill rig must not be moved from site to site with the drill mast in the raised position.
- Proper lighting will be provided if drilling/excavating at night.
- Drilling/excavation will be discontinued during an electrical storm.
- The drilling subcontractor will employ lockout/tagout procedures when the drill rig is not in operation (i.e., after normal work hours).

**Malcolm Pirnie's Duties:**

- Hard hats and safety boots must be worn at all times in the vicinity of the drill rig and/or backhoe. Hearing protection is also recommended. Safety glasses are necessary.
- The presence of combustible gases should be checked before igniting any open flame (e.g., during welding).
- Malcolm Pirnie personnel shall stand upwind of any drilling/excavating operation when not immediately involved in sampling/logging activities.
- Malcolm Pirnie personnel will not enter trenches unless the trenches are shored or back sloped according to OSHA 29CFR 1926.652.
- Malcolm Pirnie personnel will not approach the edge of a unsecured trench closer than 2 feet.

## **6.0 PERSONAL PROTECTIVE EQUIPMENT**

### **6.1 PROTECTION LEVELS**

---

Personnel must wear protective equipment when work activities involve known or suspected atmospheric contamination; when vapors, gases, or particulates may be generated; or when direct contact with dermally active substances may occur. Full-face respirators will be used to protect the lungs, the gastro-intestinal tract and the eyes against air toxicants. Chemical-resistant clothing will be used to protect the skin from contact with skin--destructive and skin-absorbable chemicals. Good personal hygiene and safe work practices, as identified in Section 6.0, are also necessary to limit or prevent the ingestion of potentially harmful substances.

Based upon current information regarding the contaminants suspected to be present at the BB&S Treated Lumber Site and the various tasks that are included in the remedial investigation/feasibility study, the minimum required Levels of Protection shall be as identified in Table 6-1.



**TABLE 6-1**
**REQUIRED LEVELS OF PROTECTION:<sup>(1)</sup>**

<b>Activity</b>	<b>Respiratory*</b>	<b>Clothing<sup>(2)</sup></b>	<b>Gloves<sup>(2)</sup></b>	<b>Boots<sup>(2)</sup></b>	<b>Other Modifications<sup>(3)</sup></b>
Drill Boreholes	D/C	PT	N	L	Hard Hat, Respirator, Safety Glasses, Hearing Protection
Hydropunch Sampling	D/C	PT	N	L	Hard Hat, Respirator, Safety Glasses, Hearing Protection
Collect Surface Soil Samples	D/C	PT	N	L	Safety Glasses, Hard Hat
Redevelop Wells and Collect Groundwater	D/C	PT	N	L	Safety Glasses, Hard Hat
Pump Test	D/C	PT	N	L	Hard Hat, Safety Glasses
Non-Intrusive Site Work	D/C	—	—	—	Safety Glasses, Hard Hat

**Notes:**

- (1) PT = Polyethylene-coated Tyvek; L = Latex; N = Nitrile; S = Saranex; SS = Silver Shield; B = Butyl
  - (2) To be worn when Level C conditions are present (mandatory) or when Level D conditions are present (optional).
  - (3) At the discretion of the Site Health and Safety Officer, respirators will be donned whenever potentially contaminated airborne particulate (i.e., dust) are generated in significant amounts in the breathing zone.
- \* Respiratory protection shall correspond to guidelines presented in Section 8.2. The Level C requirement is an air-purifying cartridge respirator equipped with Organic Compound/Acid Gases/Dust cartridges.

## **7.0 ENVIRONMENTAL MONITORING**

### **7.1 GENERAL APPROACH**

---

#### **7.1.1 On-Site Monitoring**

Modifications to the level of protection established for Malcolm Pirnie employees for each task will be based upon measurements of the contaminants present in the work environment. Tasks and activities proposed for this site along with the estimated potential of exposure to contaminants known to be present in the groundwater and soil at the site have been used to determine the minimum required levels of personal protection described in Section 6.0. Based upon the existing data base, a release of organic vapors is anticipated during both intrusive investigations and sampling activities. Ambient breathing zone concentrations may, at times, exceed the permissible exposure limits (PEL) established by OSHA for the individual compounds (see Table 2-2). Respiratory and dermal protection may be modified (upgraded or downgraded) based upon real-time field monitoring data.

Contaminated soil and groundwater are most likely to be encountered during borehole drilling, Hydropunch sampling, and sampling activities. The air monitoring program to be implemented by Malcolm Pirnie will monitor volatile contaminants as well as the presence of respirable dust when the soil is physically disturbed by drilling equipment and backhoes. A combustible gas meter and total organic vapor analyzer (HNu) shall be utilized by Malcolm Pirnie personnel to verify field conditions during drilling/excavating operations. Real time monitoring will be performed by Malcolm Pirnie personnel on a periodic basis during other on-site activities such as sample collection and reconnaissance surveys. The level of respiratory and dermal protection in use will be based upon an evaluation of general and chemical specific air monitoring data.

Monitoring instruments will be protected from surface contamination during use to allow for easy decontamination. When not in use, the monitoring instruments will be placed on plastic sheeting to avoid surface contact. Additional monitoring instruments may be required if the situations or conditions change.

During drilling/excavating and soil examination operations, the work area surrounding the borehole will be monitored at regular intervals using an HNu photo-ionization detector, (or similar organic vapor monitoring device) as well as an explosimeter and a particulate meter. Observed values will then be recorded and maintained as part of the permanent field record. Breathing zone monitoring with an HNu will be recorded at ½-hour intervals during drilling and continuously during test pit work. The actual frequency of breathing zone monitoring with an HNu will be dependent primarily upon values generated by screening the cuttings and the proximity of the worker's breathing zones to the source of contamination. Contaminant values which are in excess of established action levels appropriate for the prescribed level of protection will be immediately addressed. These action levels are given in Section 7.2 of this HASP.

Any split-spoon samples which are collected will be surveyed with the HNu, or similar equipment as each sample is retrieved. These values will be recorded with the respective sample number and will assist in the determination of the adequacy of employee protective equipment. In addition, to minimize dermal contact with potentially contaminated fill/soils, long-handled spoons and knives shall be used during split-spoon sampling and examination of the soil-core sample by the hydrogeologist.

## **7.2 MONITORING ACTION LEVELS**

---

### **7.2.1 On-Site Levels**

The HNu (10.2 eV) or other appropriate instrument(s) will be used by either Malcolm Pirnie, Inc. personnel or the Subcontractor to monitor organic vapor concentrations as specified in this plan and in the Subcontractor's Health and Safety Plan. Methane gas will be monitored with the "combustible gas" option on the explosimeter/tritector or other appropriate instrument(s) in accordance with the drilling Subcontractor's Health and Safety Plan. In addition, fugitive dust/particulate concentrations will be monitored using a real-time particulate monitor, as specified in this plan and in the Subcontractor's Health and Safety Plan. Readings obtained in the breathing zone may be interpreted (with regard to other site conditions) as follows for on-site Malcolm Pirnie personnel:

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to background on the Hnu - Continue Operations Under Level D (see Attachment 1).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings above background to 5 ppm on the Hnu (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue Operations Under Level C (see Attachment 1).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of 5 to 50 ppm above background on the Hnu - continue operations under Level B (see Attachment 1), re-evaluate and alter (if possible) Work Plan to achieve lower vapor concentrations.
- Total atmospheric concentrations of unidentified vapors or gases above 50 ppm on the Hnu - discontinue engineering operations and exit the work zone immediately.

The explosimeter will be used to monitor levels of both combustible gases and oxygen during drilling and/or test pit excavation activities. Action levels based on the instrument readings shall be as follows:

- Less than 10% LEL - Continue drilling or test pit excavation operations with caution.
- 10-25% LEL - Continuous monitoring with extreme caution, determine source/cause of elevated readings.
- Greater than 25% of LEL - Explosion hazard; evaluate source and leave the work zone.
- Less than 19.5% oxygen - Leave work zone immediately.
- 19.5% to 25% oxygen - Continue drilling or test pit excavation with caution.
- Greater than 25% oxygen - Fire hazard potential; Leave work zone immediately.

The particulate monitor will be used to monitor respirable dust concentrations during all intrusive activities. Action levels based on the instrument readings shall be as follows:

- Less than  $3\text{mg}/\text{m}^3$  - Continue field operations
- Greater than  $3\text{m}/\text{m}^3$  - Don dust/particulate mask or equivalent. Initiate engineering controls (viz. wetting of excavated soils or tools at discretion of Site Health and Safety Officer).

Readings with the explosimeter, particulate monitor and organic vapor analyzer will be recorded and documented in the Health and Safety logbook. All instruments will be calibrated before use and the procedure will be documented in the Health and Safety logbook.

#### **7.2.7 Community Air Monitoring**

Real-time air monitoring for volatile compounds and particulate levels will be performed at the perimeter of the work area. For purposes of this monitoring activity, the perimeter of the work areas are determined to be 50 feet from the outside edge of the excavation or boring. Air monitoring will include the following:

- Volatile organic compounds will be monitored at the downwind perimeter of the work area daily at 2-hour intervals. If total organic vapor levels at the downwind perimeter exceed 5 ppm above background, work activities will be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings will be recorded and be available for New York State (DEC and DOH) personnel to review.
- Particulates will be continuously monitored upwind, downwind, and within the work area at temporary particulate monitoring stations. If the downwind particulate level is  $150\text{ ug}/\text{m}^3$  greater than the upwind particulate level, dust suppression techniques will be employed. All readings will be recorded and be available for New York State (DEC and DOH) personnel to review.

#### **7.2.2.1 Vapor Emission Response Plan**

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume but more frequent intervals of monitoring, as directed by the Site Health and Safety

Coordinator must be conducted. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume, provided:

- the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background, and
- more frequent intervals of monitoring, as directed by the Safety Officer, Are conducted.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down. When work shutdown occurs, downwind air monitoring as directed by the Site Health and Safety Coordinator will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

#### **7.2.2.2 Major Vapor Emission**

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of the work activities or as the result of an emergency, organic levels persist for more than 30 minutes above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20-Foot Zone).

If efforts to abate the emission source are unsuccessful and if any of the following levels persist for more than 30 minutes in the 20-Foot Zone, then the Major Vapor Emission Response Plan will be placed into effect if organic vapor levels are approaching 5 ppm above background. However, the Major Vapor Emission Response Plan will be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

### **7.2.2.3 Major Vapor Emission Response Plan**

Upon activation, the following activities will be undertaken:

1. Emergency Response Contacts as listed in the Health and Safety Plan of the Work Plan will go into effect.
2. The local police authorities will immediately be contacted by the Site Health and Safety Coordinator and advised of the situation.
3. Frequent air monitoring will be conducted at 30-minute intervals within the 20-Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Site Health and Safety Coordinator.

### **7.2.3 Personal Air Monitoring**

Real time air monitoring for arsenic of site personnel will be conducted in accordance with 29 CFR 1910.1080. The following procedure for sampling will be followed:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Sample at an accurately known plan rate between and 3 L/Min for a total sample size of 30 to 1000 L.
3. Ship sample with a blank on ice to travels engineering laboratory, for analysis using NIOSH Method 7900.

An initial monitoring sample will be collected. If concentrations are less than the action level, additional samples will be collected when work assignments change. If greater than action level but less than PEL, will notify personnel and do continuous air monitoring. If above PEL, will upgrade to Level C.

## **8.0 HEAT/COLD STRESS MONITORING**

Since some of the work activities at the BB&S Lumber Treated Site will be scheduled for both the summer and winter months, measures will be taken to minimize heat/cold stress to Malcolm Pirnie employees. Malcolm Pirnie's Site Health and Safety Coordinator or designee will be responsible for monitoring Malcolm Pirnie employees' for symptoms of heat/cold stress.

### **8.1 HEAT STRESS MONITORING**

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Personal protective equipment may place an employee at risk of developing heat stress, probably one of the most common (and potentially serious) illnesses encountered at hazardous waste disposal sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning and age. Personal protective equipment may severely reduce the body's normal ability to maintain equilibrium (via evaporation, convection and radiation), and by its bulk and weight increases energy expenditure.

The signs and symptoms of heat stress are as follows:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
  - muscle spasms
  - pain in the hands, feet and abdomen
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:
  - pale, cool, moist skin
  - heavy sweating
  - dizziness
  - nausea
  - fainting



- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are:
  - red, hot, usually dry skin
  - lack of or reduced perspiration
  - nausea
  - dizziness and confusion
  - strong, rapid pulse
  - coma

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 110 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the following work cycle may be further shortened by 33%. Oral temperature should be measured again at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No Malcolm Pirnie employee will be permitted to continue wearing semipermeable or impermeable garments when his/her oral temperature exceeds 100.6° Fahrenheit.

## **8.2 COLD STRESS MONITORING**

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Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:
  - 1) **Frostnip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions, removal of boots and gloves, soaking the injured part in warm water (102-108°F) and drinking a warm beverage.
  - 2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish-grey area of tissue which will be firm to the touch but will yield little pain. Treatment is identical to that for Frostnip.
  - 3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard, and will yield little to no pain. Treatment is identical to that for Frostnip.
- **Hypothermia** occurs when the body loses heat faster than it can produce it. The stages of hypothermia (which may not be clearly defined or visible at first) are the following:
  - 1) Shivering
  - 2) Apathy (a change to a disagreeable mood)
  - 3) Unconsciousness
  - 4) Bodily freezing
  - 5) Death (if untreated)

Treatment of hypothermia is given below:

- Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)
- Perform active re-warming with hot liquids for drinking (Note: do **not** give the victim any liquid containing alcohol or caffeine in this case) and a warm water bath (102-108°F)
- Perform passive re-warming with a blanket or jacket wrapped around the victim.

In any potential cold stress situation, it is the responsibility of the Site Health and Safety Officer to encourage the following:

- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in a heated area, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if frostbite has set in).

## **9.0 WORK ZONES AND SITE CONTROL**

Work zones around the areas designated for drilling, sample collection, and Hydropunch sampling will be established by the Subcontractor on a daily basis and communicated to all employees and other site users by the Subcontractor's Site Health and Safety Officer. It shall be the Subcontractor's Site Health and Safety Officer's responsibility to ensure that all site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- **Exclusion Zone ("Hot Zone")** - the area where contaminated materials may be exposed, excavated or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by snow-type fencing. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.0;
- **Contamination Reduction Zone** - the zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment and samples must remain in the Contamination Reduction Zone until decontaminated;
- **Support Zone** - the part of the site which is considered non-contaminated or "clean". Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the Subcontractor. Only personnel who are essential to the completion of the task will be allowed access to these areas and only if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the Subcontractor's Site Health and Safety Officer. Local persons and/or regulatory personnel who have been denied access will be directed to the public information officer.

During drilling operations, the exclusion zone will include the area immediately upwind of the borehole. Site workers will bring split-spoons into this zone. Sample collection and logging of soil-core samples will be completed in this zone.

A log containing the names of workers and their level of protection will be maintained by the Subcontractor(s).



The zone boundaries may be changed by Malcolm Pirnie's Site Health and Safety Officer as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

## **10.0 DECONTAMINATION PROCEDURES**

### **10.1 PERSONAL DECONTAMINATION FOR MPI EMPLOYEES**

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The degree of decontamination required is a function of both a particular task and the physical environment within which it takes place. The following decontamination procedure, although somewhat specific to the tasks described herein, will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental conditions which may arise at the site. The procedure shall be followed by all Malcolm Pirnie personnel who are on the site.

- |  |   |
|--|---|
| Station 1: Equipment Drop                        | 1. Deposit Equipment used on-site (tools, containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination.                       |
| Station 2: Boots and Gloves<br>Wash and Rinse    | 2. Scrub outer boots and outer gloves with decon solution or detergent water. Rinse off using copious amounts of water.   |
| Station 3: Tape, Outer Boot and<br>Glove Removal | 3. Remove tape, outer boots and gloves. Deposit tape and gloves in container provided by Subcontractor.   |
| Station 4: Canister or<br>Mask Change            | 4. If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, and worker returns to duty. |
| Station 5: Outer Garment<br>Removal              | 5. Protective suit removed and deposited in separate container provided by Subcontractor(s).  |

Station 6: Face Piece, Hard Hat,  
Safety Goggles Removal

6. Face piece or safety glasses removed (if used). Avoid touching face with fingers. Facepiece and/or safety glasses deposited on plastic sheet. Hard hat removed and placed on plastic sheet.

Station 7: Inner Glove Removal

7. Inner gloves are the last personal protective equipment to be removed. Avoid touching the outside of the gloves with bare fingers. Dispose of these gloves in container provided by Subcontractor.

## **10.2 DECONTAMINATION FOR MEDICAL EMERGENCIES**

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In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (i.e., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a site contaminant would be considered "Immediately Dangerous to Life or Health."

## **10.3 DECONTAMINATION OF FIELD EQUIPMENT**

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Decontamination of heavy equipment will be conducted by the Subcontractor(s) at an off-site location to be determined, within a 2-mile radius of the project site in accordance with his approved Health and Safety Plan. Heavy equipment and tools utilized during drilling/excavating and monitoring well installation activities including spoons and augers will be wrapped in plastic prior to transportation to the off-site decontamination pad. Decontamination water will be prevented from moving outside the decontamination pad and will be transferred to a holding tank. The Subcontractor(s) Health and Safety Officer will make daily inspections to determine that this procedure is being followed.

Decontamination of all tools used for sample collection purposes will be conducted by Malcolm Pirnie personnel. Decontamination fluids will be containerized and prepared for proper off-site disposal. Decontamination of all bailers, split-spoons, spatula knives, and other tools used for multi-media environmental sampling and examination shall be as follows:

- disassemble the equipment;
- water wash to remove all visible foreign matter;
- wash with detergent;
- rinse all parts with distilled-deionized water;
- allow to air dry; and
- wrap all parts in aluminum foil or polyethylene to prevent contamination of clean equipment.



## **12.0 EMERGENCY INFORMATION**

In accordance with OSHA 29 CFR Part 1910, an Emergency Response Plan is attached to this HASP as Attachment 2.

## **APPENDIX C**

### **STANDARD OPERATING PROCEDURES**

- C- 1 Drill Site Selection**
- C- 2 Documentation Requirements for Drilling/Well Installation**
- C- 3 Hollow Stem Auger Drilling**
- C- 4 Screening of Soil Samples for Organic Vapors**
- C- 5 Split Spoon Sampling**
- C- 6 Soil Boring Log Description Procedures**
- C- 7 Well Development**
- C- 8 Well/Piezometer Construction/Materials and Design**
- C- 9 Well Purging Prior to Sampling**
- C-10 Ground Water Sampling**
- C-11 Drilling/Excavation Equipment Decontamination Products**
- C-12 Sample Shipping**
- C-13 Sample Labeling**
- C-14 Procedure for Field Filtration of Aqueous Metal Samples**
- C-15 Calibration and Maintenance of Hna Photoionization Analyzed**
- C-16 Calibration and Maintenance of Portable Field pH/Eh Meter**
- C-17 Calibration and Maintenance of Portable Conductivity Meter**
- C-18 Calibration and Maintenance of Portable Field Turbidity Meter**
- C-19 Calibration and Maintenance of Portable Dissolved Oxygen Meter**
- C-20 Water Level Monitoring**
- C-21 Constant Rate Pump Test**
- C-22 Hydraulic Conductivity and Transmissivity  
Determination by Constant Site Pumping Tests**

**ATTACHMENT 1  
PROTECTION ENSEMBLES**

## **ATTACHMENT 1**

### **PROTECTION ENSEMBLES**

Equipment designed to protect the body against contact with known or anticipated chemical hazards have been divided into four categories according to the degree of protection afforded:

- Level A: Should be selected when the highest level of respiratory, skin and eye protection is needed.
- Level B: Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required; Level B protection is the minimum level recommended on initial site entries until the hazards have been further defined by on-site studies.
- Level C: Should be selected when the types of airborne substances are known, the concentrations have been measured and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.
- Level D: Should not be worn on any site with respiratory or skin hazards. This is primarily a work uniform providing minimal protection.

The level of protection selected is based primarily on:

- Types and measured concentrations of the chemical substances in the ambient atmosphere and their associated toxicity; and
- Potential or measured exposure to substances in air, splashes of liquids or other indirect contact with material due to the task being performed.

In situations where the types of chemicals, concentrations, and possibilities of contact are not known, the appropriate level of protection must be selected based on professional experience and judgement until the hazards may be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components based on the

widely used USEPA Levels of Protection are detailed below for levels B, C, and D protection.

### Level B Protection Ensemble

#### Recommended

- Pressure-demand, full-face piece self-contained breathing apparatus (MSHA/-NIOSH approved) or pressure-demand supplied-air respirator with escape SCBA;
- Saranex chemical-resistant clothing (overalls and long-sleeved jacket; hooded one- or two-piece chemical splash suit; disposable chemical-resistant one-piece suit); disposable chemical-resistant one-piece suit);
- Inner and outer chemical resistant gloves (silver shell);
- Chemical-resistant latex safety boots/shoes; and
- Hard hat.

#### Optional

- Coveralls.
- Disposable boot covers.
- Face shield.
- Long cotton underwear.

Meeting any one of the following criteria warrant the use of Level B protection:

The types and atmospheric concentrations of toxic substances have been identified and require the highest level of respiratory protection, but a lower level of skin and eye protection. These would be atmospheres:

- with concentrations Immediately Dangerous to Life and Health (IDLH)
- exceeding limits of protection afforded by a full-face air-purifying mask;
- containing substances for which air-purifying canisters do not exist or have low removal efficiency;

- containing substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard;
- containing less than 19.5% oxygen; or
- with evidence of incompletely identified vapors or gases as indicated by direct reading organic vapor detection instrument, but those vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

Level B equipment provides a high level of protection to the respiratory tract, but a somewhat lower level of protection to skin. The chemical-resistant clothing required in Level B is available in a wide variety of styles, materials, construction detail and permeability. These factors all affect the degree of protection afforded. Therefore, a specialist should select the most effective, chemical-resistant clothing based on the known or anticipated hazards and task. Level B skin protection is selected by:

- Comparing the concentrations of identified substances in the air with skin toxicity data;
- Assessing the effect of the substance (at its measured air concentrations or splash potential) on the small area of the head and neck unprotected by chemical-resistant clothing.

#### Level C Protection Ensemble

##### Recommended:

- Full-face piece, air-purifying respirator equipped with MSHA and NIOSH approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the Health and Safety Officer;
- Chemical-resistant clothing (polycoated Tyvek overalls and long-sleeved jacket, hooded, one- or two-piece chemical splash suit or disposable chemical-resistant one-piece suit);
- Inner and outer chemical-resistant gloves (butyl/nitrile);
- Chemical-resistant latex safety boots/shoes; and

- Hardhat.

Optional:

- Coveralls;
- Disposal boot covers;
- Face shield;
- Escape mask;
- Long cotton underwear.

The use of Level C protection is permissible upon satisfaction of these criteria:

- Measured air concentrations of identified substances will be reduced by the respirator to below the substance's permissible exposure limit (PEL), threshold limit value (TLV), and/or the concentration is within the service limit of the cartridge;
- Atmospheric contaminant concentrations do not exceed IDLH levels; and
- Atmospheric contaminants, liquid splashes or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device. The device (when required) must be an air purifying respirator (MSHA/NIOSH approved) equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training and the approval of a qualified individual. In addition, an air-purifying respirator can be used only if:

- Oxygen content of the atmosphere is at least 19.5% in volume;
- Substances are identified and concentrations measured;
- Substances have adequate warning properties;
- Individual passes a qualitative fit-test for the mask; and
- Appropriate cartridge/canister is used, and its service limit concentration is not exceeded.

Evacuation

In the event that an area must be evacuated due to an emergency, such as a chemical spill or a fire, workers shall exit upwind, if possible. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the Site Health and Safety Officer to review evacuation routes and procedures as necessary and to inform Malcolm Pirnie site workers of any changes.

Records and Reporting

It shall be the responsibility of each employer to establish and assure adequate records of all:

- Occupational injuries and illnesses;
- Accident investigations;
- Reports to insurance carrier or State compensation agencies;
- Reports required by client;
- Records and reports required by local, state, federal and/or international agencies;
- Property or equipment damage;
- Third party injury or damage claims;
- Environmental testing logs;
- Explosive and hazardous substances inventories and records;
- Records of inspections and citations;
- Related correspondence; and
- Safety training.



An air monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

#### Level D Protection Ensemble

##### Recommended:

- Protective coveralls (Tyvek);
- Safety boots/shoes;
- Safety glasses or chemical splash goggles;
- Hardhat;
- Nitrile gloves.

##### Optional:

- Escape mask;
- Face shield.

The use of Level D protection is permissible upon satisfaction of these criteria:

- No hazardous air pollutants have been measured; and
- Work functions preclude splashes, immersion or the potential for unexpected inhalation of any chemicals; and
- Atmospheric contains at least 19.5% oxygen.

Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, or where there are no inhalable toxic substances.

**ATTACHMENT 2  
EMERGENCY RESPONSE PLAN**

**ATTACHMENT 2  
EMERGENCY RESPONSE PLAN**

Chain of Command

The following Malcolm Pirnie chain of command will be followed for any on-site emergency:

Charles Trione  
Judith Vangalio  
Anne Marie McManus, P.E.  
Mark McGowan

Communications

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of the Site Health and Safety Officer to ensure that an adequate method of internal communication is understood by all personnel entering the site. Unless all personnel are otherwise informed, the following signals shall be used.

- 1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site excavation.
- 2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/ everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

Emergency Telephone Numbers

MALCOLM PIRNIE PROJECT MANAGER:

Anne Marie McManus, P.E.	(716) 828-1300 (W)
	(716) 667-3081 (H)

## **MALCOLM PIRNIE**

### **MALCOLM PIRNIE CORPORATE HEALTH AND SAFETY MANAGER:**

Mark McGowan

Work: (914) 694-2100  
After Hours: (800) 478-6870

### **MALCOLM PIRNIE SITE HEALTH AND SAFETY OFFICER:**

Judith Vangalio

Work: (716) 828-1300  
Home: (716) 662-5404

### **MALCOLM SITE SAFETY TECHNICIAN:**

Charles Trione

Home: (201) 492-2198  
Work: (201) 529-4700

### **PUBLIC INFORMATION OFFICER:**

Sally W.W. Dewes - NYSDEC (518) 457-3395

### **CENTRAL SUFFOLK HOSPITAL,**

FIRE	911
AMBULANCE	911
POLICE	911

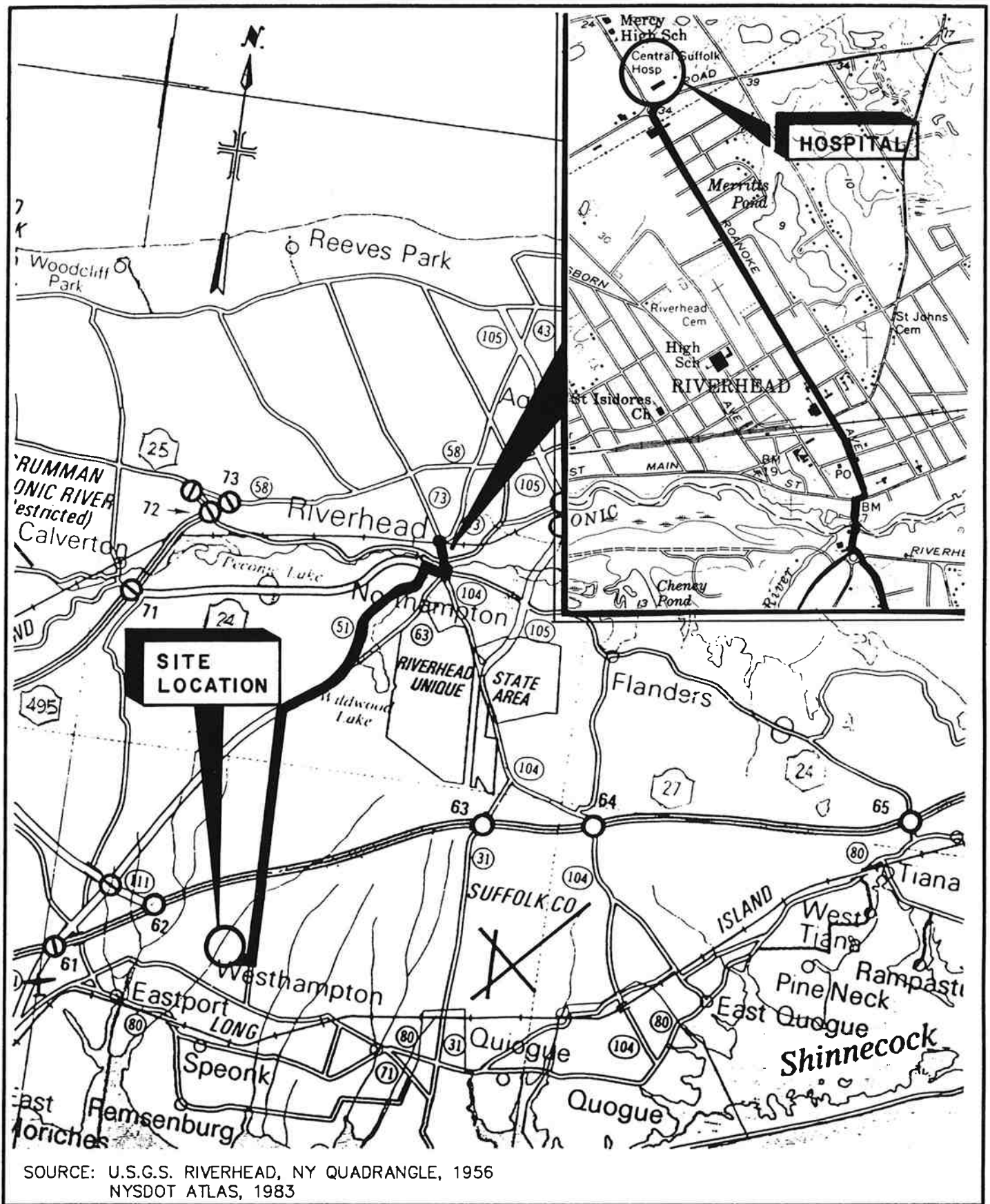
The site location is:

BB&S Treated Lumber Corp  
Speonk-Riverhead Road  
Speonk, L.I. New York

### **Directions to Hospital:**

The following directions describe the most efficient route to Lakeside Memorial Hospital (see Figure B-1):

- (1) From the Site, turn right onto Speonk-Riverhead Road and proceed north to Route 51 [approximately 2.0 miles].
- (2) Turn right onto Route 51 and proceed east for approximately 1.5 miles to a traffic circle.
- (3) Take Roanoke Avenue north from traffic circle.
- (4) The hospital is approximately 1 mile north of traffic circle, at the corner of Roanoke Avenue and Old Country Road.



**MALCOLM  
PIRNIE**

DEC-323-HS

**BB & S TREATED LUMBER SITE  
HEALTH & SAFETY PLAN  
HOSPITAL ROUTE**

NYSDEC

NOVEMBER 1995

Personnel Exposure

- Skin contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on site. If necessary, transport to Lakeside Memorial Hospital.
- Inhalation: Move to fresh air and, if necessary, transport to Lakeside Memorial Hospital.
- Ingestion: Decontaminate and transport to Lakeside Memorial Hospital.

Personal Injury

Minor first-aid will be applied on-site as deemed necessary. In the event of a life threatening injury, the individual should be transported to Lakeside Memorial Hospital via ambulance. The Malcolm Pirnie and contractor Health and Safety Officers will supply available chemical specific information to appropriate medical personnel as requested.

Malcolm Pirnie first aid kits will conform to Red Cross and other applicable good health standards, and shall consist of a weatherproof container with individually-sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the On-Site Health and Safety Coordinator to ensure that the expended items are replaced.

Adverse Weather Conditions

In the event of adverse weather conditions, the Malcolm Pirnie Site Health and Safety Coordinator in conjunction with the Malcolm Pirnie Health and Safety Officer will determine if engineering operations can continue without sacrificing the health and safety of Malcolm Pirnie employees. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat/cold stress;
- Inclement weather - related working conditions;
- Limited visibility; and
- Potential for electrical storms.

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Appendix C: Item 1 - DRILL SITE SELECTION

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHF Date: 11/1/89

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## 1.0 INTRODUCTION

This guideline presents a method for selecting a site location for drilling. Drill site selection should be based on the project objectives, ease of site access, freedom from obstructions and buried metallic objects (drums), and site safety (appropriate set backs from overhead wires and buried services).

## 2.0 METHODOLOGY

1. Review project objectives and tentatively select drilling locations which provide necessary information for achieving objectives.
2. Clear locations with property owner/operator to ensure that drilling will not interfere with operations, and select appropriate access routes.
3. Stake locations in field, measure distance from locations to recognizable landmarks, such as buildings or fence lines and plot locations on site plan. Ensure location is relatively flat, free of overhead wires and readily accessible. Survey location if property ownership is in doubt.
4. Obtain clearances from appropriate utilities, and if buried waste/metallic objects are suspected, screen location with appropriate geophysical method.
5. Establish a central staging area for storage of drilling supplies and for equipment decontamination. Locate a secure storage area for drilling samples.

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Appendix C: Item 1 - DRILL SITE SELECTION

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHE Date: 11/1/89

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### 3.0 EQUIPMENT REQUIREMENTS

- wooden stakes
- hammer
- waterproof marker
- measuring tape

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Appendix C: Item 2 - DOCUMENTATION REQUIREMENTS FOR DRILLING/  
WELL INSTALLATION

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Applicability: GENERAL Revision No.: 1 Date: \_\_\_\_\_

Prepared By: MKR Date: 11/27/89 Approved By: GHF Date: 12/6/89

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## 1.0 INTRODUCTION

This guideline states requirements for recording pertinent information in the Project Field Book and on applicable forms during drilling/installation supervision.

## 2.0 METHODOLOGY

Prior to starting a drilling project, field staff should familiarize themselves with work plans or any other agreements to ensure that they are fully conversant with program requirements and applicable field procedures.

### 1. Project Field Book

A "Project Field Book" should be established upon initiation of any site activities to document the field investigation process. The Field Book represents a critical, legally defensible QA component of the project. The Field Book must be bound and should have numbered (can be numbered in field), water resistant pages. Various data forms can be inserted into the book as appropriate, prior to binding. All notations should be in black ink which will not smudge when wet. Notations in the Field Book should follow a log book format, specifying time and date of all entries. Information to be recorded in the Field Book should include:

- name and location of project site, and appropriate project job number;
- listing of key project, client and agency personnel and telephone numbers;

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Appendix C: Item 2 - DOCUMENTATION REQUIREMENTS FOR DRILLING/  
WELL INSTALLATION

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: MKR Date: 11/27/89 Approved By: GHF Date: 12/6/89

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- (on a daily basis) date and time of arrival and departure, name of person keeping the log, names and affiliation of persons on site (purpose of visit if applicable), weather conditions, outline of project activities to be completed;
- details of any variations to the procedures/protocols presented in the Work Plan or Field Operations Plans and basis for the changes;
- all field-generated data relating to implementation of the field program including sample locations, sample descriptions, field measurements, instrument calibration, etc.; and
- a record of all photographs taken in the field which includes date, time, photographed by, site location and orientation, sequential number of photograph and roll number.

Upon completion of the site activities, the Field Book should be placed in the project files.

The following are descriptions of two project field forms which can be bound into the Project Field Book if required.

a. Borehole Log Form (example attached)

This form must be completed for every boring. Special attention should be paid for filling out the title portion of the form which includes the project, boring #, method and date, especially when more than one sheet is used. The form should be updated as additional information, such as elevations, becomes available.

The sample logging (description) section should be completed in detail following the guidelines titled "Soil Boring Log Description Procedures" and "Bedrock Coring Description Procedures."

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Appendix C: Item 2 - DOCUMENTATION REQUIREMENTS FOR DRILLING/  
WELL INSTALLATION

---

Applicability: GENERAL Revision No.:      Date:       
Prepared By: MKR Date: 11/27/89 Approved By: GHF Date: 12/6/89

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- b. Monitoring Well Construction Log (example attached)  
complete one monitoring well construction log form per well.  
Measure all depths from the ground surface using a scale  
with tenths/hundredths of feet rather than inches.

Record all applicable information and update the log as  
additional data, such as elevations, become available.

2. Daily Drilling Report Form (example attached)

This form should be used to record all drilling activities  
on a daily basis and should be completed at the end of each  
day.

This form will provide the basis for the drilling invoices  
and will be consulted where the invoice is in dispute.  
Therefore, careful attention must be paid to supplies used,  
drilling footage, number of samples taken, and especially  
time spent when hourly rates are in effect. Also, the  
number of hours on the job and time lost due to breakdown  
must be recorded. Time spent on specific events such as  
getting water, remobilization, decontamination, lunch, etc.  
should be recorded in the "remarks" section as well as the  
bar graph.

The form should be signed daily by both the supervising  
geologist and the driller representative.

Submit completed forms to the project manager on a routine  
basis (frequency to be specified).

3. Other Project Field Forms

Well purging/well development forms, test pit logs, environ-  
mental sampling field data sheets, water level monitoring  
forms, and well testing (slug test or pumping test) forms.  
Refer to specific guidelines for form descriptions.

010.1

# MONITORING WELL CONSTRUCTION LOG

PROJECT: \_\_\_\_\_ LOCATION: \_\_\_\_\_ DRILLER: \_\_\_\_\_  
 PROJECT NO.: \_\_\_\_\_ BORING: \_\_\_\_\_ DRILLING \_\_\_\_\_  
 GROUND ELEV.: \_\_\_\_\_ DATE: \_\_\_\_\_ METHOD: \_\_\_\_\_  
 FIELD GEOLOGIST: \_\_\_\_\_ DEVELOPMENT \_\_\_\_\_  
 METHOD: \_\_\_\_\_

ELEV. OF TOP OF PROTECTIVE CASING: \_\_\_\_\_ ft. AMSL  
 ELEV. OF TOP OF RISER PIPE: \_\_\_\_\_ ft. AMSL  
 STICK-UP TOP OF PROTECTIVE CASING: \_\_\_\_\_ ft.  
 STICK-UP RISER PIPE: \_\_\_\_\_ ft.  
 GROUND SURFACE ELEV.: \_\_\_\_\_  
 DEPTH BOTTOM OF SURFACE CASING: \_\_\_\_\_ ft.  
 DEPTH TOP OF GROUT INVASION BARRIER: \_\_\_\_\_ ft.  
 DEPTH TOP OF SEAL: \_\_\_\_\_ ft.  
 DEPTH TOP OF SECONDARY SAND PACK: \_\_\_\_\_ ft.  
 DEPTH TOP OF PRIMARY SAND PACK: \_\_\_\_\_ ft.  
 DEPTH TOP OF SCREEN: \_\_\_\_\_ ft.  
 DEPTH BOTTOM OF SCREEN: \_\_\_\_\_ ft.  
 DEPTH BOTTOM OF SCREEN CAP: \_\_\_\_\_ ft.  
 DEPTH BOTTOM OF SAND PACK: \_\_\_\_\_ ft.  
 DEPTH OF HOLE: \_\_\_\_\_ ft.

LOCKING COVER  
 WELL CAP  
 I.D. x LENGTH OF PROTECTIVE CASING: \_\_\_\_\_ ft.  
 1/4" WEEP HOLE  
 TYPE OF SURFACE SEAL: \_\_\_\_\_  
 I.D. OF SURFACE CASING: \_\_\_\_\_ ft.  
 TYPE OF SURFACE CASING: \_\_\_\_\_  
 RISER PIPE I.D.: \_\_\_\_\_ ft.  
 TYPE OF RISER PIPE: \_\_\_\_\_  
 BOREHOLE DIA.: \_\_\_\_\_ ft.  
 TYPE OF BACKFILL: \_\_\_\_\_  
 TYPE OF BARRIER: \_\_\_\_\_  
 TYPE OF SEAL: \_\_\_\_\_  
 TYPE OF SAND PACK: \_\_\_\_\_  
 TYPE OF SCREEN: \_\_\_\_\_  
 SLOT SIZE x LENGTH: \_\_\_\_\_ ft.  
 I.D. OF SCREEN: \_\_\_\_\_ ft.  
 BOREHOLE DIA.: \_\_\_\_\_ ft.  
 TYPE OF SAND PACK: \_\_\_\_\_  
 TYPE OF BACKFILL BELOW OBSERVATION WELL: \_\_\_\_\_

## DAILY DRILLING REPORT

CONTRACTOR: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRILLING EQUIP.: \_\_\_\_\_ WEATHER: \_\_\_\_\_  
 CREW MEMBERS: \_\_\_\_\_

## DRILL TIME LOG

[illegible]

REMARKS:

CONSUMABLE: DESCRIBE NATURE, QUANTITY, SIZE, ETC.

[illegible][illegible]

**COMMENTS:**

**INSPECTOR**

CONSULTANT'S REP.

DRILLER

CONTRACTOR'S REP.

CLIENT \_\_\_\_\_

PROJECT \_\_\_\_\_

LOCATION \_\_\_\_\_

CONTRACTOR \_\_\_\_\_

METHOD OF BORING : SOIL \_\_\_\_\_

ROCK \_\_\_\_\_

JOB NO. \_\_\_\_\_

LOGGED BY \_\_\_\_\_

CORE DIA. \_\_\_\_\_

**ELEVATIONS: DATUM**

NOTES: Boring, Testing and Sampling Procedures, Water Loss and Gain Drilling and Testing Equipment, Etc.

[illegible]

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Appendix C: Item 3 - HOLLOW STEM AUGER DRILLING

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHF Date: 11/1/89

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## 1.0 INTRODUCTION

This guideline presents a method for hollow stem auger (HSA) drilling, which enables the recovery of representative subsurface samples for identification and laboratory testing.

## 2.0 METHODOLOGY

1. Mobilize the auger rig to the site, ensure that driller has appropriate equipment and that the rig is in good repair.
2. Assemble auger and drill rods, advance the boring by rotating and applying downward pressure with the rig hydraulics, the desired distance into the subsurface. The borings are generally advanced incrementally to permit continuous or intermittent sampling as required.
3. Remove drill rods and center plug from augers and sample subsurface per method stipulated by the project geologist.
4. In the event running sands are encountered, an attempt to remove the sands will be made with a sand bailer.

012

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Appendix C: Item 4 - SCREENING OF SOIL SAMPLES FOR  
ORGANIC VAPORS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: MKR Date: 12/3/89 Approved By: GHE Date: 1/5/89

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## 1.0 INTRODUCTION

This guideline presents a method for screening soil samples. During drilling activities, a total hydrocarbon vapor analyzer (HNu, OVA, or TIP) should be used to monitor the borehole and split spoon samples upon opening of each sampler. The monitoring results provide a vertical profile of soil contamination by volatile organic substances.

## 2.0 METHODOLOGY

1. Upon opening each split spoon sampler, place a subsample of the soil in a 40 ml, precleaned, glass VOA vial. Seal the vial with a teflon-lined septum cap, label, and place the vial immediately on ice in an ice chest.
2. Place the remainder of the sample in a labeled wide-mouthed glass jar. Seal the jar with aluminum foil and a screw top cap.
  - a. Keep these samples at as near to 70°F as possible.
  - b. At the end of each day check head space of each sample for any organic vapor present by inserting the probe of the organic vapor analyzer through the aluminum foil seal.
  - c. The soil sample from each borehole will be noted where VOA's were detected and the corresponding VOA sample (#1 above) should be submitted to a laboratory for analysis of SW846 Method 8010 volatiles.



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Appendix C: Item 4 - SCREENING OF SOIL SAMPLES FOR  
ORGANIC VAPORS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: MKR Date: 12/3/89 Approved By: GHF Date: 1/5/89

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### 3.0 EQUIPMENT REQUIREMENTS

- 40 ml. precleaned and prelabeled glass VOA vials with teflon-lined septum caps
- ice and ice chest
- wide mouthed glass jars with screw caps
- aluminum foil
- Organic Vapor Analyzer

024

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Appendix C: Item 5 - SPLIT SPOON SAMPLING

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHF Date: 11/1/89

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## 1.0 INTRODUCTION

Split spoon sampling is a standard method of soil sampling to obtain representative samples for identification, laboratory testing and as a measure of resistance of soil to sampler penetration (ASTM D 1586).

## 2.0 SITE PREPARATION

1. Place plastic sheeting on a sturdy workbench to prevent the split-spoon and its contents from coming in contact with the workbench (several layers of sheeting may be placed on the workbench so that they may be removed between each sample or as needed).

## 3.0 METHODOLOGY

1. Measure the sampling equipment lengths to ensure they conform to specifications. Select additional components as required (i.e., leaf spring core retainer for clays or a sand trap for non-cohesive sands).
2. Remove the drill rods and lower the sampler to the bottom of the auger column and check the depth against length of the rods and the sampler.
3. Attach the drive head sub and hammer to the drill rods without the weight resting on the rods.
4. Mark four 6-inch intervals on the drill rods relative to a drive reference point on the rig. With the sampler resting on the bottom of the hole, drive the sampler with the 140 lb. hammer falling freely over the its 30-inch fall until 24 inches have been penetrated or 100 blows applied.

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Appendix C: Item 5 - SPLIT SPOON SAMPLING

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHF Date: 11/1/89

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5. Record the number of blows per 6 inches. Determine the "N" value by adding the blows for the 6 to 12 inches and 12 to 18-inch interval of each sample attempt.
6. After penetration is complete, let the sampler sit for a minimum of 3 minutes, then rotate the sampling rods clockwise three full turns and remove the sample.
7. Open sampler, describe the soil and (if required) collect a moisture content sample from the nose of the spoon if only one soil type is present and additional samples if more than one soil type is present.
8. Place moisture content sample in an appropriate container and label the container.
9. Document all properties and sample locations in Project Field Book.
10. Place sample in suitable container, label and store sample on-site.

#### 4.0 EQUIPMENT REQUIREMENTS

- personal protective garment and gear (if applicable)
- plastic sheeting - work bench/table
- sampling knife (stainless steel)
- trowel (stainless steel)
- engineer's rule/measuring tape
- Project Field Book
- suitable prelabeled sample container(s)

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Appendix C: Item 5 - SPLIT SPOON SAMPLING

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHE Date: 11/1/89

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## 5.0 REFERENCES

Driscoll, F.G., 1987, Groundwater and Wells: Johnson Division, St. Paul, Minnesota, 1089 p.

ASTM D 1586-84, Standard Method for Penetration Test and Split-Barrel Sampling of Soils.

017

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Appendix C: Item 6 - SOIL BORING LOG DESCRIPTION PROCEDURES

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHE Date: 10/31/89

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## 1.0 INTRODUCTION

This guideline presents a means for insuring proper field identification and description of soils collected from a split spoon (barrel) sampler. The lithology and moisture content of each soil sample will be visually and physically characterized according to the Burmister Classification System. This method of soil characterization describes soil types on the basis of grain size and liquid and plastic limits and includes moisture content.

## 2.0 METHODOLOGY

1. Assemble necessary equipment and discuss program requirements with drilling contractor.
2. Advance boring in accordance with accepted methodology with split spoon sampling at prespecified intervals. Record the number of blows necessary to drive the split spoon sampler per 6-inch interval. If the sampler is not driven the 6 inch interval after 50 blows are delivered, measure the sampler penetration distance and record this distance along with the blow count. Advance augers to the next sample interval and repeat procedure.
3. After opening the split-spoon sampler, measure and record the length of the sample. The upper 2 to 3 inches of the sample should be disregarded as this material is likely not representative of the native in-situ materials.
4. Shave a thin layer off the entire length of the sample to expose fresh sample. (Note: The outer sample surface is often smeared while the sample barrel is being driven.) The sample should be photographed and screened with HNu at this time, if applicable.

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Appendix C: Item 6 - SOIL BORING LOG DESCRIPTION PROCEDURES

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 10/31/89 Approved By: GHF Date: 10/31/89

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5. Describe the sample using terminology presented in Section 3.0 below.
6. After the sample has been described, place a representative portion of the sample in new, pre-cleaned jars. Label the jar with the borehole number, sample interval, date, number of blow counts and project number and store in a secure location.

### 3.0 DESCRIPTIVE TERMS

All field soil samples will be described as to color, texture and type, soil mass properties (if applicable), moisture content and consistency, or compactness in accordance with the Burmister Classification System on the attached form. The attached table presents a summary of field soil descriptive terms which should be used.

### 4.0 EQUIPMENT REQUIREMENTS

- knife
- engineer's rule/measuring tape
- permanent marker
- pre-cleaned sample jars (usually provided by the driller)
- 10X handlens
- hydrochloric acid
- camera
- Munsell soil color chart
- Project Field Book

# SOIL DESCRIPTION TERMS

COLOR (Examples)	TEXTURE	COMPOSITION	SOIL MASS PROPERTIES (If Applicable)	MOISTURE CONDITION	CONSISTENCY COMPACTNESS	COHESIVE OR COHESIONLESS	IDENTIFYING CHARACTERISTICS	IDENTIFYING FINE GRAINED SOIL TESTS
Grey	Particle: Size (mm):	"trace" <10%	Structure:	Cohesionless:	Consistency:	"N":	Characteristics:	Dry Strength
Brown	Clay/Silt <0.06	"some" 10-15%	- Stratified	- DTPL	- Very Soft	<2	- Extrudes bet- fingers when squeezed	Dilatancy
Blue-Gray	Sand: 0.06 - 0.2	adjective 15-35%	- Laminated	- APL	- Soft	2-4	- Molded by light finger pressure	Toughness
Mottled	fine 0.2 - 0.6	"and" 35-50%	- Fissured	- WTPL	- Firm	4-8	- Molded by strong finger pressure	Plasticity
Yellow & Dark Green Etc.	coarse 0.6 - 2	noun >50%	- Slickensided	<u>Cohesive:</u>				
	Gravel:		- Blocky	- Dry				
	fine 2 - 6		- Lensed	- Moisture				
	medium 6 - 20		- Homogeneous	- Wet				
	coarse 20 - 60		- Moisture					
		<u>GRADING</u>	<u>Micro-Structure:</u>					
	Cobbles 60 - 200	Well-Graded	- Weathered		- Stiff	8-15	- Can be indented by thumb	
	Boulders >200	Poorly Graded	- Cemented		- Very Stiff	15-30	- Can be indented by thumbnail	
			- Reaction to HCL		- Hard	>30	- Difficult to indent by thumbnail	
			- Odor					
		<u>SHAPE</u>			<u>Compactness:</u>	<u>"N":</u>	<u>Characteristics:</u>	
	Flat				- Very Loose	<4	- Can be dug by hand.	
	Elongated				- Loose	4-10	- Can be dug by spade. 50 mm peg easily driven.	
	Flat & elongated				- Compact	10-30	- Needs sharp spade for excavation.	
	Angular				- Dense	30-50	- Needs pick for excavation.	
	Subangular				- Very Dense	>50	- 50 mm peg hard to to drive.	
	Subrounded							
	Rounded							
	Rough							
	Smooth							

Example: Gray-brown silty clay, laminated, APL, stiff, high dry strength, slow dilatancy, medium toughness, medium plasticity.

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Appendix C: Item 7 - WELL DEVELOPMENT

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Applicability: GENERAL Revision No.: 1 Date: 10/8/90  
Prepared By: NWT Date: 11/1/89 Approved By: GHF Date: 11/22/89

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## 1.0 INTRODUCTION

This guideline presents a method for the development of monitoring wells following completion of drilling and well installation. Each well will be developed by purging or bailing until the discharged water is relatively sediment free. Developing the well not only removes any sediment but also may improve the hydraulic properties of the filter pack.

## 2.0 METHODOLOGY

1. Select an appropriate well development method based on water level depth, well productivity and sediment content of water. Well development options include:
  - a. bailing;
  - b. manual pumping using a Waterra<sup>tm</sup> pump;
  - c. powered suction-lift pumping;
  - d. air-lift development; and
  - e. surging.
2. Assemble and decontaminate equipment if necessary, and install it in the well. Care should be taken not to introduce sediment or contaminants with the equipment during installation.
3. Develop the well by repeatedly removing water from the well until the discharged water is relatively sediment free. Monitor development effectiveness at regular intervals using a portable turbidimeter. Record both volume of water removed and turbidimeter measurements in the Project Field Book or on a "Well Development/Purging Log" form (Attached).
4. Initiate well development gently, then slowly increase the degree of agitation to remove fines from the well bottom and sand pack. Gentle well development is critical in silty and



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Appendix C: Item 7 - WELL DEVELOPMENT

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Applicability: GENERAL Revision No.: 1 Date: 10/8/90

Prepared By: NWT Date: 11/1/89 Approved By: GHE Date: 11/22/89

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clayey formations as these fines may be continuously pulled into the well under vigorous development conditions.

5. Discontinue well development either when the turbidity of the discharged water reaches a predetermined value or when the turbidity level stabilizes indicating that additional development will be ineffective.

### 3.0 REFERENCES

- (a) New York State Department of Environmental Conservation, July 1988, Drilling and Monitoring Well Installation Guidance Manual.
- (b) Gass, T.E. Monitoring Well Filter Pack and Screen Slot Selection: A Reassessment of Design Parameters. Water Well Journal, June 1988, pp. 30-32.

032

# WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

STAFF: \_\_\_\_\_

DATE: \_\_\_\_\_

WELL NO.: \_\_\_\_\_

WELL I.D.

VOL.  
GAL./FT.

① TOTAL CASING AND SCREEN LENGTH (FT.): \_\_\_\_\_

1"

0.04

② CASING INTERNAL DIAMETER (in.): \_\_\_\_\_

2"

0.17

③ WATER LEVEL BELOW TOP OF CASING (FT.) \_\_\_\_\_

3"

0.38

④ VOLUME OF WATER IN CASING (GAL.) \_\_\_\_\_

4"

0.66

5"

1.04

6"

1.50

8"

2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL.}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										

COMMENTS:

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Appendix C: Item 8 - WELL/PIEZOMETER CONSTRUCTION

MATERIALS AND DESIGN

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Applicability: NYSDEC SPECIFICATION Revision No.:      Date:     

Prepared By: NWT Date: 11/1/89 Approved By: GHF Date: 11/22/89

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## 1.0 INTRODUCTION

This guideline presents construction materials and design requirements for monitoring well/piezometer installations in accordance with NYSDEC recommended specifications (6NYCRR Part 360).

## 2.0 CONSTRUCTION MATERIALS

1. Well Screen and Riser - Only new flush threaded screen and riser materials will be used. Screen and riser materials, well dimensions, screen slot opening size and length to be determined based on formation characteristics and suspect water quality. A vented cap should be placed over the riser and a V-slot cut in the riser as a monitoring reference point.
2. Bentonite Well Seal - The bentonite should be from a commercial source free of chemical additives (granular or powdered for grout and pelletized for seal).
3. Cement - Low heat of hydration cement should be used for grout and cementing protective casing if well construction materials are composed of PVC (ASTM Type II or Type IV Portland Cement).
4. Water - Water should be from a potable source of known chemistry and free of chemical constituents which may compromise integrity of installation.
5. Grout - Mixture of bentonite, cement and water in accordance with the following specifications. Premix bentonite and water prior to adding cement.

Grout Slurry Composition (% Weight)

1.5 to 3.0% - Bentonite (Quick Gel)  
40 to 60% - Cement (Portland Type I)  
40 to 60% - Water

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Appendix C: Item 8 - WELL/PIEZOMETER CONSTRUCTION

MATERIALS AND DESIGN

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Applicability: NYSDEC SPECIFICATION Revision No.:      Date:     

Prepared By: NWT Date: 11/1/89 Approved By: GHE Date: 11/22/89

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6. Filter Pack - The filter pack should consist of clean, inert, siliceous, rounded to subrounded particles. Filter pack particle size is dependent on the formation and the slot size of the screen.

The grain size of the filter material for a particular formation is determined using sieves and grain size analysis curves. The filter pack grain size at 30% finer (d30) and 70% retained should be 4 to 10 times greater than the d30 of the screened formation. The uniformity coefficient should equal 2.5 or less.

A secondary filter about 6-inches thick may be placed between filter pack and the bentonite seal, and potentially between the bentonite seal and the grout backfill, to minimize grout penetration of the seal. An uniformly graded fine sand (100% passing No. 30 sieve) should be used as a secondary filter.

7. Protective Casing, Locking Cap and Lock - Protective casing with a lockable cap should be cemented in place around the riser. The inside diameter of the protective casing should be a minimum of 2-inches larger than the outside diameter of the riser. The annular space between the casing and the riser should be filled with pea gravel or coarse sand. A weep hole should be drilled near the base of the casing. If more than one well is installed, all locks should be keyed alike.
8. A sample of all cement, bentonite, and sand used in well construction should be saved in a labelled, Teflon-sealed, precleaned glass jar.

### 3.0 REFERENCES

New York State Department of Environmental Conservation, July 1988, Drilling and Monitoring Well Installation Guidance Manual.

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Appendix C: Item 8 - WELL/PIEZOMETER CONSTRUCTION

MATERIALS AND DESIGN

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Applicability: NYSDEC SPECIFICATION Revision No.:      Date:     

Prepared By: NWT Date: 11/1/89 Approved By: GHF Date: 11/22/89

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Driscoll, F.G., 1987, Groundwater and Wells: Johnson Division,  
St. Paul, Minnesota, 1089 p.

Sara, M.N., Proposed Recommended Practice for Design and Installation  
of Ground Water Monitoring Wells in Aquifers: ASTM Subcommittee D18.21.

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Appendix C: Item 9 - WELL PURGING PRIOR TO SAMPLING

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Applicability: GENERAL Revision No.: 1 Date: 2/7/91

Prepared By: MKR Date: 11/28/89 Approved By: RHO Date: 2/7/91

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## 1.0 INTRODUCTION

This guideline presents methods for well purging prior to ground water sample collection in order to collect representative ground water samples. Purging involves the removal of at least three to five volumes of water in wells with moderate yields and at least one volume from wells with low yields (slow water level recovery). Sampling should commence as soon as the well has adequately recharged.

## 2.0 WELL PURGING METHODOLOGY

1. Unlock and carefully remove the well cover to avoid introducing foreign material into the well. Monitor the top of the well casing for organic vapors using a photoionization detector (HNU), if applicable. If a reading of greater than 5 ppm is recorded, the well should be allowed to vent until levels drop below 5 ppm before proceeding with purging.
2. Calculate the volume of water in the well based on the water level below top of casing and the total depth of well using the following equation:  
$$V = 5.825 I^2 (D-W)$$

V = one well volume (gallon)  
I = inside diameter of well casing (feet)  
D = Well Depth (feet)  
W = Depth to Water from Top of Casing (feet)
3. For wells where the water level is 20 feet or less below the top of casing, use a suction-lift pump to purge the well. Measure the purged volume using a calibrated container and record measurements in a field notebook. Use dedicated new low density polyethylene tubing for each well. During this evacuation of shallow wells, the intake opening of the pump tubing should be positioned just below the surface of the

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Appendix C: Item 9 - WELL PURGING PRIOR TO SAMPLING

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Applicability: GENERAL Revision No.: 1 Date: 2/7/91

Prepared By: MKR Date: 11/28/89 Approved By: RHO Date: 2/7/91

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water. As the water level drops, lower the tubing as needed to maintain flow. The intake level should not be lowered past the top of the screen. Pumping from the top of the water column will ensure proper flushing of the well. Continue pumping until the required volumes are removed. Adjust the purging rate to maintain the water level above the screen.

For wells that exhibit an elevated turbidity (values greater than 50 NTU), maintain a purging rate which limits drawdown of the water level in the well. This procedure will reduce the hydraulic gradient in the well vicinity and limit piping of sediment particles through the sand pack and into the well. Use a peristaltic pump to achieve purging rates below the minimum rate of a suction lift pump.

For wells where the screen straddles the water table, maintain purging at a rate which matches the rate of recovery of the well (well yield). If the well purges to dryness and is slow to recharge (greater than 15 minutes), terminate evacuation.

4. For wells where the water level is initially below about 20 feet, or draw down to this level because of a slow recharge rate, conduct purging using one of three (3) devices:

- Bailer - A bottom filling bailer with a leader made of teflon stainless steel wire or single strand polypropylene monofilament of at least 10-feet long which is attached to a dedicated 1/4-inch nylon rope, should be used.
- Well Wizard Purge Pump - This is a pneumatic pump that uses compressed air to push water to the surface. Ground water is in contact with the drive air during the pumping process, therefore the pump is not used for sampling. Drive air is fully contained within the pump apparatus.
- Waterra<sup>TM</sup> pump - This is a manually operated pump which uses dedicated polyethylene tubing and a check valve, and can be used as an optional method for purging deeper

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Appendix C : Item 9 - WELL PURGING PRIOR TO SAMPLING

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Applicability: GENERAL Revision No.: 1 Date: 2/7/91

Prepared By: MKR Date: 11/28/89 Approved By: RHO Date: 2/7/91

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wells. The pump and tubing should be removed prior to sampling.

Prior to use in a well, the bailer, exterior pump bodies, and pump tubing should be cleaned using decontamination protocols specified for the program.

5. Purging will continue until a predetermined volume of water has been removed. Record measurements for pH, temperature, conductivity and turbidity during purging. The stability of these measurements with time can be used to guide the decision to discontinue purging. If the water level drops to the top of the screen and does not recover within 15 minutes, then purging will be considered complete.
6. Record well purging data in the Project Field Book or on the attached "Well Development/Purging Log" form.

034.1



# WELL DEVELOPMENT/PURGING LOG

PROJECT TITLE: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

STAFF: \_\_\_\_\_

DATE: \_\_\_\_\_

WELL NO.: \_\_\_\_\_

WELL I.D.

VOL.  
GAL./FT.

① TOTAL CASING AND SCREEN LENGTH (FT.): \_\_\_\_\_

1"

0.04

② CASING INTERNAL DIAMETER (in.): \_\_\_\_\_

2"

0.17

③ WATER LEVEL BELOW TOP OF CASING (FT.) \_\_\_\_\_

3"

0.38

④ VOLUME OF WATER IN CASING (GAL.) \_\_\_\_\_

4"

0.66

5"

1.04

6"

1.50

8"

2.60

$$V = 0.0408 (\textcircled{2})^2 \times (\textcircled{1} - \textcircled{3}) = \text{_____ GAL.}$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										

COMMENTS:

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Appendix C: Item 70 - GROUND WATER SAMPLING

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Applicability: GENERAL Revision No.: 1 Date: 2/7/91

Prepared By: MKR Date: 11/27/89 Approved By: RHO Date: 2/7/91

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## 1.0 INTRODUCTION

This guideline presents a method for collecting a ground water sample after the monitoring well has been purged and has sufficiently recovered. Sampling should be carried out according to the following protocol:

## 2.0 METHODOLOGY

1. Perform sampling as soon as practical after purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If the well does not yield sufficient volume for all required laboratory analytical testing (including quality control), a decision should be made to prioritize analyses based on contaminants of concern at the site. Analyses will be prioritized in the order of the parameters volatilization sensitivity. After volatile organics have been collected, field parameters must be measured from the next sample collected. If a well takes longer than 24 hours to recharge, the Project Manager should be consulted.
2. Following purging and recharging the well, collect samples into appropriate containers using a stainless steel or polytetrafluoroethylene (PTFE) bailer. The bailer should be equipped with a leader made of Teflon, stainless steel wires or single strand polypropylene monofilament of at least ten feet long which is attached to a new, dedicated 1/4-inch nylon rope. The bailer should be lowered slowly below the surface of the water so as to allow the water to touch only the "leader" and not the nylon rope. Prior to its use in the field, the stainless steel bailer and "leader" should be cleaned according to decontamination protocols specified for the program.
3. For wells that are known to produce turbid samples (values greater than 50 NTU), the bailer should be lowered and retrieved at a rate that limits surging of the well.

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Appendix C: Item 10 - GROUND WATER SAMPLING

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Applicability: GENERAL Revision No.: 1 Date: 2/7/91

Prepared By: MKR Date: 11/27/89 Approved By: RHO Date: 2/7/91

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4. Prelabel all sample bottles in the field using a waterproof permanent marker. The following information should be included on the label:
  - Site name
  - Sample identification code
  - Project number
  - Date/time of sample collection (month, day, year)
  - Sampler's initials
  - Preservation added (if any)
  - Analysis to be performed
5. Collect samples into pre-cleaned bottles provided by the analytical laboratory with the appropriate preservative(s) added, and the samples placed in coolers for shipment to the designated laboratory. Chain of custody procedures should be adhered to upon sample collection.

All samples will be total (unfiltered) unless the project specific work plan states otherwise. Should sample filtration be required, ground water samples will be pressure-filtered through 0.45 um filters in the field using air.
6. Collect a separate sample of approximately 200 mls into an appropriate container to measure pH, conductivity, temperature and turbidity in the field.
7. Record well sampling data in the Project Field Book or on the attached "Water Sampling Field Data Sheet."

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Appendix C: Item 10 - GROUND WATER SAMPLING

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Applicability: GENERAL Revision No.: 1 Date: 2/7/91

Prepared By: MKR Date: 11/27/89 Approved By: RHO Date: 2/7/91

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### 3.0 REFERENCES

- (a) USEPA, September 1986, RCRA Groundwater Monitoring Technical Enforcement Guidance Document.

035.1

# WATER SAMPLING FIELD DATA SHEET

PROJECT: \_\_\_\_\_  
 CLIENT: \_\_\_\_\_  
 JOB NO.: \_\_\_\_\_

TYPE OF SAMPLE: \_\_\_\_\_  
 LOCATION NO.: \_\_\_\_\_  
 LAB SAMPLE NO.: \_\_\_\_\_

**WELL DATA:** DATE: \_\_\_\_\_  
 Casing Diameter (inches): \_\_\_\_\_  
 Screened Interval (ft BGS): \_\_\_\_\_  
 Static Water Level Below TOR (ft): \_\_\_\_\_  
 Elevation Top of Well Riser: \_\_\_\_\_

TIME: \_\_\_\_\_  
 Casing Material: \_\_\_\_\_  
 Screen Material: \_\_\_\_\_  
 Bottom Depth (ft): \_\_\_\_\_  
 Datum Ground Surface: \_\_\_\_\_

**PURGING DATA:** DATE: \_\_\_\_\_  
 Method: \_\_\_\_\_  
 Well Volumes Purged ( $V = \pi R^2 H / 231$ ): \_\_\_\_\_  
 Standing Volume (gal): \_\_\_\_\_  
 Volume Purged (gal): \_\_\_\_\_  
 Is purging equipment dedicated to sample location?  
 Yes \_\_\_\_\_ No \_\_\_\_\_  
 Field Personnel: \_\_\_\_\_

TIME: Start: \_\_\_\_\_ Finish: \_\_\_\_\_  
 Pumping Rate (gal/min): \_\_\_\_\_  
 Was well purged dry? \_\_\_\_\_ Yes \_\_\_\_\_ No  
 Was well purged below sand pack? \_\_\_\_\_ Yes \_\_\_\_\_ No

Well I.D. (inches)	Volume (gal/ft)
2	0.17
4	0.66
6	1.50

**SAMPLING DATA:** DATE: \_\_\_\_\_  
 Method: \_\_\_\_\_  
 Present Water Level (ft): \_\_\_\_\_  
 Depth of Sample (ft): \_\_\_\_\_  
 Is sampling equipment dedicated to sample location?

TIME: Start: \_\_\_\_\_ Finish: \_\_\_\_\_  
 Sampler: \_\_\_\_\_  
 Air Temperature (°F): \_\_\_\_\_  
 Weather Conditions: \_\_\_\_\_  
 Yes \_\_\_\_\_ No \_\_\_\_\_

**PRESERVATION DATA:** DATE: \_\_\_\_\_  
 Filtered: \_\_\_\_\_ Yes \_\_\_\_\_ No  
 Preservative: \_\_\_\_\_  $H_2SO_4$  \_\_\_\_\_  $HNO_3$  \_\_\_\_\_ NaOH \_\_\_\_\_ Other

TIME: Start: \_\_\_\_\_ Finish: \_\_\_\_\_  
 Cool to 4°C: \_\_\_\_\_

**PHYSICAL AND CHEMICAL DATA:**

Appearance: Clear: \_\_\_\_\_ Turbid: \_\_\_\_\_ Color: \_\_\_\_\_  
 Contains Sediment: \_\_\_\_\_ Odor: \_\_\_\_\_ Other: \_\_\_\_\_  
 Temperature (°C): \_\_\_\_\_ pH: \_\_\_\_\_ Specific Conductivity ( $\mu mhos/cm$ ): \_\_\_\_\_  
 Turbidity (NTU): \_\_\_\_\_ Other: \_\_\_\_\_

REMARKS:

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Appendix C: Item 11 - DRILLING/EXCAVATION EQUIPMENT

DECONTAMINATION PROTOCOLS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 02/02/90 Approved By: GHF Date: 02/02/90

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## 1.0 INTRODUCTION

This guideline presents a method for the decontamination of drilling and excavation equipment (i.e., drill rigs, backhoes, augers, cutting bits, drill steel, buckets, and associated equipment) used during a subsurface investigation. Equipment will be decontaminated at an established and clearly demarcated decontamination facility (see appropriate guideline) prior to initiating surface penetration of each boring/excavation (drill equipment cleaning is not required between wells of the same nest). This will prevent cross-contamination from the previous drilling/excavation location.

## 2.0 METHODOLOGY

1. Remove all soil/rock material from the equipment at the survey site.
2. Wrap augers, tools, plywood, and other reusable items with a plastic cover prior to transport from the survey site to the decontamination facility.
3. Transport equipment to the decontamination facility.
4. Wash equipment thoroughly with pressurized low-volume water or steam (power washer or steam jenny) using a wire brush to remove visible soils/etc. adhering to the equipment.
5. Use phosphate-free detergent (e.g., Alconox) to remove any oils, grease, and/or hydraulic fluids adhering to the equipment.
6. Rinse with pressurized low-volume water or steam.
7. Allow equipment to air dry.

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Appendix C: Item 11 - DRILLING/EXCAVATION EQUIPMENT  
DECONTAMINATION PROTOCOLS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 02/02/90 Approved By: GHF Date: 02/02/90

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8. Wrap with clean plastic or aluminum foil, if appropriate, to prevent contamination if equipment is going to be stored or transported.
9. Fluids used for decontamination will not be recycled. All wash water, rinse water, and decontamination fluids will be stored in containers until final disposition according to applicable State and Federal regulations.
10. Following final rinse, openings will be visually inspected to verify they are free of soil/etc. particulates which may contribute to possible cross-contamination.

### 3.0 REFERENCES

USEPA Region IV Engineering Support Branch. 1986. Standard Operating Procedures and Quality Assurance Manual.

070

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Appendix C: Item 12 - SAMPLE SHIPPING

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Applicability: GENERAL Revision No.: 2 Date: 02/21/89

Prepared By: THF Date: 11/9/89 Approved By: KLB Date: 10/10/89

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## 1.0 INTRODUCTION

This guideline presents a method for chain-of-custody procedures to track sample shipments, to minimize loss or misidentification of samples, and to ensure that unauthorized persons do not tamper with collected samples.

## 2.0 METHODOLOGY

1. Fill out the chain-of-custody form completely (see attached example) with all relevant information (the white original goes with the samples and should be placed in a "ziploc" plastic bag and taped inside the sample cooler lid; the yellow copy should be retained by the sampler).
2. Mark liquid volume and solids levels on sample bottles with grease pencil.
3. Place about 3 inches of inert cushioning material such as styrofoam peanuts or bubble pack in bottom of cooler. Place bottles in cooler with VOA vials (in a "ziploc" bag) in the center of the cooler.
4. Cover pack bottles, especially VOA vials, with ice in plastic bags. Pack cooler with blue ice in "ziploc" plastic bags and additional cushioning material.
5. Tape drain shut and wrap cooler completely with strapping tape to secure lid.
6. Place lab address on top of cooler. To protect the shipping coolers against tampering during shipment, the cooler lid will be taped to the cooler body. A chain-of-custody seal will be placed over the tape. A broken seal will indicate that the contents may have been tampered with.



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Appendix C: Item 12 - SAMPLE SHIPPING

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Applicability: GENERAL Revision No.: 2 Date: 02/21/89

Prepared By: THF Date: 11/9/89 Approved By: KLB Date: 10/10/89

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7. For out-of-town laboratory shipments, specify that the contents are "Fragile" and place "This Side Up" labels on all four sides of the cooler. "This Side Up" labels are yellow labels with a black arrow with the arrow head pointing toward the cooler lid. "This Side Up" labels should not be affixed to the cooler lid or the cooler bottom.

056



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Appendix C: Item 13 - SAMPLE LABELLING

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Applicability: GENERAL Revision No.: 1 Date: 11/9/89

Prepared By: THF Date: 11/9/89 Approved By: KLB Date: 10/10/89

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## 1.0 INTRODUCTION

This guideline presents a method for sample labelling in order to properly identify environmental samples collected during the field investigation.

## 2.0 METHODOLOGY

1. Assign each sample of each matrix a unique identification alpha-numeric code. An example of this code and a description of its components is presented on the following page.
2. Affix a non-removable (when wet) label to each sample container. The following information should be written on the label with permanent marker:
  - Site name
  - Sample identification
  - Project number
  - Date/time of sample collection (month, day, year)
  - Sampler's initials
  - Sample preservation
  - Analysis required
3. Wrap the label with 2-inch cellophane tape such that the label is completely covered and the tape wraps around the entire perimeter of the bottle.

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Appendix C: Item 13 - SAMPLE LABELLING

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Applicability: GENERAL Revision No.: 1 Date: 11/9/89

Prepared By: THF Date: 11/9/89 Approved By: KLB Date: 10/10/89

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Example of Sample ID: XX-MW1D

XX (Site Code)	MW1 (Sample Location)
D (Monitor/Sample Type)	MW = Ground Water Installation (Well Location No. 1)
(S) Shallow	SP = Sampling Point
(I) Intermediate	SW = Surface Water
(D) Deep	SB = Soil Boring (depth designation follows alpha code)
	SS = Stream Sediment (water depth designation follows alpha code).
	TB = Trip Blank
	RB = Field (Rinse) Blank

055

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Appendix C: Item 14 - PROCEDURE FOR FIELD FILTRATION OF  
AQUEOUS METALS SAMPLES

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Applicability: GENERAL Revision No.: 2 Date: 02/23/90  
Prepared By: AJM Date: 02/23/90 Approved By: KLB Date: 02/23/90

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## 1.0 INTRODUCTION

This guideline presents a method for filtering aqueous samples in the field for dissolved metals analyses. Filtering of the samples may be performed on-site provided the sample is filtered immediately after sample collection.

## 2.0 METHODOLOGY

1. Filter aqueous metals samples using a filter flask and funnel made out of polyethylene or borosilicate glass. Pre-clean both the flask and the funnel by rinsing with a ten (10) percent nitric acid ( $\text{HNO}_3$ ) solution followed by a thorough rinsing of demonstrated analyte-free deionized water. Use this cleaning procedure prior to filtration of all samples.
2. Use a cellulose based membrane filter with a pore size of 0.45 microns (mm). Since the ultimate effect of the introduction of air to a water sample can be a change in the valence state of some cations which in turn could lead to the loss of analytes through precipitation (e.g., oxidation of ferrous ion to ferric ion after aeration), filter samples immediately after their collection. Pass samples through the filtration apparatus once. Repeated filtration of the sample to accommodate turbidity criteria is not allowed. Preserve samples immediately with undiluted ultra pure  $\text{HNO}_3$  and check the pH to ensure that a reading of less than 2 is attained. Add only enough  $\text{HNO}_3$  to lower the pH to less than 2.

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Appendix C: Item 14 - PROCEDURE FOR FIELD FILTRATION OF  
AQUEOUS METALS SAMPLES

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Applicability: GENERAL Revision No.: 2 Date: 02/23/90

Prepared By: AJM Date: 02/23/90 Approved By: KLB Date: 02/23/90

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### 3.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC),  
Division of Hazardous Substance Regulation, August 1989, RCRA Quality  
Assurance Project Plan Guidance.

009

Appendix C: Item 15 - CALIBRATION AND MAINTENANCE OF HNu

PHOTOIONIZATION ANALYZER

Applicability: HAZARDOUS Revision No.:      Date:     

Prepared By: THF Date: 10/31/89 Approved By: KLB Date: 11/1/89

### 1.0 INTRODUCTION

This procedure presents a method for calibration of the HNu PI 101 Photoionization Analyzer. The HNu PI 101 is a portable instrument used to detect, measure, and provide a direct reading of a variety of trace gases in the atmosphere. In order to ensure an accurate reading, the HNu must be calibrated prior to use in the field and at regular intervals while in the field.

### 2.0 ACCURACY

The HNu PI 101 is temperature compensated so that a 20°C change in temperature corresponds to a change in reading of less than two percent full-scale at maximum sensitivity. The useful range of the instrument is from 0.2 to 2000 ppm with an accuracy of 0.1 ppm. Response time is less than three seconds to 90 percent of full-scale.

### 3.0 CALIBRATION

All field test equipment will be calibrated at the beginning of each sampling day and checked and recalibrated according to the manufacturer's specifications [6NYCRR 360-2.11(a)(12)(v)(a)].

The meter will be calibrated using a cylinder of pressurized gas certified by a reputable supplier. The calibration gas will be in the same matrix in which the measurements will be taken. The span pot will be adjusted so the instrument will read the exact value of the calibration

Appendix C: Item 15 - CALIBRATION AND MAINTENANCE OF HNu

PHOTOIONIZATION ANALYZER

Applicability: HAZARDOUS

Revision No.:     

Date:     

Prepared By: THF

Date: 10/31/89

Approved By: KLB

Date: 11/1/89

gas. For a HNu factory-calibrated by benzene, the calibration will be made using bottled "span gas" supplied by HNu.

#### 4.0 MAINTENANCE

1. If any of the following conditions occur, consult the trouble-shooting guide provided in the Instruction Manual:
  - a. No meter response in any switch position (including BATT CHK).
  - b. Meter response in BATT CHK, but reads zero or near zero for all others.
  - c. Instrument reads correctly in BATT CHK and STBY, but not in measuring mode.
  - d. Instrument responds in all positions, but signal is lower than expected.
  - e. Erratic meter movement occurs.
  - f. Instrument response slow or irreproducible.
  - g. Low battery indicator.
2. Should the trouble shooting techniques fail to resolve the problem, the Equipment Maintenance Officer will send the instrument to the manufacturer for repair and maintenance.
3. Clean the light source window every four weeks during periods of continued use.



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Appendix C: Item 15 - CALIBRATION AND MAINTENANCE OF HNu

PHOTOIONIZATION ANALYZER

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Applicability: HAZARDOUS Revision No.:      Date:     

Prepared By: THF Date: 10/31/89 Approved By: KLB Date: 11/1/89

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4. Check the meter battery at the beginning and end of each day. If the needle is not within or above the green battery arc on the scale-plate, recharge the battery prior to making any measurements.

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Appendix C: Item 16 - CALIBRATION AND MAINTENANCE OF PORTABLE  
FIELD pH/Eh METER

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: IHF Date: 12/22/89 Approved By: KLB Date: 12/22/89

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### 1.0 INTRODUCTION

This guideline presents a method for calibration of a portable pH/Eh meter. The pH/Eh meter measures and provides a log scale reading of the hydrogen ion concentration of a water sample (pH function) or of the oxidation/reduction potential of a water sample (Eh function). In order to ensure an accurate reading, the pH/Eh meter must be calibrated prior to use in the field.

### 2.0 ACCURACY -

The calibrated accuracy of the pH/Eh meter will be:

pH - 0.1 pH unit, over the temperature range of -2°C to 40°C.

Eh - -1 to +1 millivolts over the range of -700 to +700 millivolts.

### 3.0 CALIBRATION

Calibrate all field test equipment at the beginning of each sampling day and check and recalibrate according to the manufacturer's specifications. Calibrate the pH/Eh meter by immersing the sensing probe in a container of certified pH buffer solution traceable to the National Bureau of Standards, and compare the meter reading to the known value of the buffer solution, which is stirred. If the reading obtained by the meter does not agree with the known value of the buffer solution, adjust the "standardize" control until the desired reading is obtained. In addition,

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Appendix C: Item 16 - CALIBRATION AND MAINTENANCE OF PORTABLE  
FIELD pH/Eh METER

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Applicability: GENERAL Revision No.:      Date:       
Prepared By: THF Date: 12/22/89 Approved By: KLB Date: 12/22/89

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measure the temperature of the buffer solutions, and adjust the temperature setting of the meter accordingly. Typically, pH 4.0, 7.0 and 10.0 buffers will be used for calibration purposes. Two-point calibrate the meter in the field at the beginning and end of each group of measurements. Select the two points to bracket the range of expected field measurements. The narrowest range possible is desired to maximize accuracy. This procedure will apply to both the pH and Eh functions of the meter, since there is no need to standardize the Eh function to any additional buffer or to compensate for solution temperature.

#### 4.0 MAINTENANCE

1. When not in use or between measurements, keep the pH/Eh probe immersed in or moist with buffer solution.
2. Check the meter batteries at the end of each day and recharge when needed.
3. Replace the pH/Eh probe any time that the meter response time becomes greater than two minutes or the metering system consistently fails to retain its calibrated accuracy for a minimum of ten sample measurements.
4. If a replacement of the pH/Eh probe fails to resolve instrument response time and stability problems, the equipment officer will send the instrument to its manufacturer for maintenance and repair.
5. Maintain a log for each monitoring instrument. Record all maintenance performed on the instrument on this log with date and name of the organization performing the maintenance.

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Appendix C: Item 16 - CALIBRATION AND MAINTENANCE OF PORTABLE

FIELD pH/Eh METER

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: THF Date: 12/22/89 Approved By: KLB Date: 12/22/89

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## 5.0 DATA VALIDATION

Document all instrument calibrations in the field notebook, indicating the meter readings before and after the meter has been adjusted. Also document the pH buffers used to calibrate the meter. This is important, not only for data validation, but also to establish maintenance schedules and component replacement.

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Appendix C: Item 17 - CALIBRATION AND MAINTENANCE OF  
PORTABLE CONDUCTIVITY METER

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Applicability: GENERAL Revision No.: 1 Date: 12/29/89

Prepared By: THF Date: 12/29/89 Approved By: KLB Date: 12/29/89

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## 1.0 INTRODUCTION

This guideline presents a method for checking the calibration of a portable field conductivity meter. The conductivity meter is factory calibrated and measures and provides a direct reading of the conductivity of a water sample. In order to ensure an accurate reading, the calibration of the conductivity meter must be checked prior to use in the field.

## 2.0 ACCURACY

The calibrated accuracy of the specific-conductance meter is within three percent of full-scale over the temperature range of -2°C to 40°C.

## 3.0 CALIBRATION

The instrument has been calibrated by the manufacturer according to factory specifications. All test equipment must be field checked at the beginning of each sampling day [6NYCRR 360-2-11(a)(12)(v)(a)] using a calibration solution having a known specific conductivity and salinity. Check the factory calibration by immersing the sensor probe in a container of manufacturer-prepared standard solution of known specific conductivity. Turn the meter on and allow approximately 30 seconds for response. If the reading obtained does not agree with the known specific conductivity of the solution, proceed as follows:

- Turn the instrument off, and mechanically zero the meter in accordance with the instruction manual (if possible).

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Appendix C Item 17 - CALIBRATION AND MAINTENANCE OF  
PORTABLE CONDUCTIVITY METER

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Applicability: GENERAL Revision No.: 1 Date: 12/29/89

Prepared By: THF Date: 12/29/89 Approved By: KLB Date: 12/29/89

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- Turn the instrument on and check the battery power. If necessary, place the meter on charge for several hours.
- Clean and dry the probe thoroughly. With the probe not in the solution, turn the meter on and adjust the range selector to the lowest range available. The meter reading should be within two minor divisions of zero. If the response is outside this range, return the meter to the manufacturer for repair.
- Place the electrode in the manufacturer-prepared solution of known salinity. Adjust the "salinity" control to match that of the standard solution.
- If the above steps fail to adequately calibrate the meter, consult the manufacturer.

#### 4.0 MAINTENANCE

1. Check the meter batteries at the end of each day and recharge when needed.
2. Track the meter response time and stability to determine the need for instrument maintenance. When response time becomes greater than two minutes and the meter must be recalibrated more than once per day, send the instrument to the manufacturer for maintenance and repair.
3. Maintain a log for each specific-conductance meter. Record all maintenance performed on the instrument on this log with date and name of organization performing the maintenance.

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Appendix Q: Item D - CALIBRATION AND MAINTENANCE OF  
PORTABLE CONDUCTIVITY METER

Applicability: GENERAL Revision No.: 1 Date: 12/29/89

Prepared By: THF Date: 12/29/89 Approved By: KLB Date: 12/29/89

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#### 5.0 DATA VALIDATION

Document all instrument calibration checks, indicating the meter readings before and after the meter has been adjusted. The standard solution used to calibrate the meter will also be documented.

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Appendix C: Item 18 - CALIBRATION AND MAINTENANCE OF PORTABLE  
FIELD TURBIDITY METER

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: THF Date: 2/9/90 Approved By: KLB Date: 2/9/90

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## 1.0 INTRODUCTION

This procedure presents a method for calibration of the HACH Model 16800 portable field turbidity meter. The turbidity meter is used to measure and provide a direct reading of the cloudiness or clarity of water samples. The turbidity meter is factory calibrated. In order to ensure an accurate reading, the factory calibration must be checked prior to using the meter in the field.

## 2.0 ACCURACY

The calibrated accuracy of the turbidity meter will be within one percent of full-scale on all scale ranges.

## 3.0 CALIBRATION

All factory calibrated field test equipment must be checked at the beginning of each sampling day and recalibrated (if necessary) according to the manufacturer's specifications (Ref. 1). Check the factory calibration of the turbidity meter as follows:

1. With the instrument turned off, check the mechanical zero adjustment on the meter face. Adjust for a zero reading if necessary.
2. Turn the meter on and perform a battery check. Charge the batter pack if the meter indicates low battery charge.



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Appendix C: Item 18 - CALIBRATION AND MAINTENANCE OF PORTABLE  
FIELD TURBIDITY METER

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Applicability: GENERAL Revision No.:      Date:       
Prepared By: THF Date: 2/9/90 Approved By: KLB Date: 2/9/90

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3. Place the focusing template into the cell holder, press the 1.0 range switch, and adjust the ZERO control to obtain a zero NTU reading.
4. Remove the focusing template and insert a 0.9 NTU turbidity standard. Adjust the SPAN control for a corrected 0.9 NTU reading, if necessary.
5. Remove the 0.75 NTU standard and replace it with a 9 NTU standard. Press the 10 range switch. The meter should indicate 9 ( $\pm 0.02$ ) NTU. If it does not, the 10 range potentiometer must be adjusted in accordance with the manufacturer's instructions. Adjust the SPAN control for a reading of exactly 9 NTU.
6. Remove the 9 NTU standard and replace it with the cell riser and 90 NTU standard. Press the 100 range switch. The meter should indicate 90 ( $\pm 2$ ) NTU.
7. Remove the 90 NTU standard and cell riser and insert the 9 NTU standard. Press the 10 NTU range switch. Adjust the SPAN control for a reading of exactly 9 NTU.
8. Remove the 9 NTU standard and replace it with a 0.9 NTU standard. Press the 1.0 range switch. The meter should indicate the correct value for the 0.9 NTU standard ( $\pm 0.2$ ). If it does not, the 1.0 range potentiometer must be adjusted in accordance with the manufacturer's instructions.

#### 4.0 MAINTENANCE

1. Check the meter battery pack at the end of each day and recharge when needed.
2. When not in use, store the meter in a clean, dry area with the protective cover shut.
3. Clean the lens periodically with a dry cloth or tissue.

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Appendix C: Item 18 - CALIBRATION AND MAINTENANCE OF PORTABLE  
FIELD TURBIDITY METER

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: THF Date: 2/9/90 Approved By: KLB Date: 2/9/90

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4. Maintain a log for each turbidity meter. All maintenance performed on the instrument will be recorded on this log with date and name of organization performing the maintenance.

#### 5.0 DATA VALIDATION

Document all instrument calibrations, indicating the meter readings before and after adjustment. The calibration standard manufacturer and type will also be documented. Record any problems or malfunctions occurring during field use and present them with the instrument readings obtained.

#### 6.0 REFERENCES

1. New York State Code of Rules and Regulations, 6NYCRR Part 360, Section 2.11(a)(12)(v)(a).

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Appendix C: Item 19 - CALIBRATION AND MAINTENANCE OF  
PORTABLE DISSOLVED OXYGEN METER

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: EWM Date: 04/16/90 Approved By: KLB Date: 04/24/90

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## 1.0 INTRODUCTION

This guideline presents a method for checking the calibration of a portable dissolved oxygen meter. The dissolved oxygen meter is to measure the dissolved oxygen content of surface water samples. In order to ensure an accurate reading, the calibration must be checked prior to using the meter in the field.

## 2.0 ACCURACY

The calibrated accuracy of the dissolved oxygen meter will be within  $\pm$  one percent of full-scale over the temperature range of  $-5^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$ .

## 3.0 CALIBRATION

The dissolved oxygen meter will be air calibrated based on probe temperature and true local atmospheric pressure conditions (or feet above sea level). Refer to the operation manual for detailed calibration procedures.

## 4.0 MAINTENANCE

1. When not in use or between measurements, the dissolved oxygen probe will be kept immersed in or moist with deionized water.

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Appendix C: Item 19 - CALIBRATION AND MAINTENANCE OF  
PORTABLE DISSOLVED OXYGEN METER

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: EWM Date: 04/16/90 Approved By: KLB Date: 04/24/90

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2. The meter batteries will be checked prior to each meter's use and will be replaced when the meter cannot be red-line adjusted.
3. The meter response time and stability will be tracked to determine the need for instrument maintenance. When response time becomes greater than two minutes, probe service is indicated. The probe will be cleaned, refilled with new KCL solution, and fitted with a new membrane. If the meter response and stability is not in accordance to manufacturer's specifications, the meter will be sent to the manufacturer for maintenance and repair.
4. A maintenance log will be kept for each dissolved oxygen meter. All maintenance performed on the instrument will be recorded on this log with date and name of the organization performing the maintenance.

#### 5.0 DATA VALIDATION

All instrument calibrations will be documented, indicating the meter readings before and after the meter has been adjusted. Each preparation of probe and method of calibration will also be documented. This is important, not only for data validation, but also to establish maintenance schedules and component replacement.

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Appendix C: Item 20 - WATER LEVEL MONITORING

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: MKR Date: 11/20/89 Approved By: GHE Date: 11/22/89

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## 1.0 INTRODUCTION

This guideline presents a method for obtaining water levels from monitoring wells/piezometers. The ground water levels measured in the monitoring wells can be used to determine ground water flow directions and when combined with hydraulic conductivity data, flow rates.

Water levels in monitoring wells should be measured using an electronic water level indicator which has been checked to ensure it is operational, prior to mobilizing to the field.

## 2.0 METHODOLOGY

1. Pre-clean water level probe and lower portion of cable following appropriate decontamination procedures.
2. Lower probe slowly into the monitoring well until the audible alarm, which indicates water, sounds.
3. Read depth from the graduated cable, to the nearest 100th (0.01) of a foot using either the v-notched reference point on the well riser or the highest point on the well riser as a reference. Repeat the measurement for confirmation and record the water level in the Project Field Book or on a "Ground Water Levels" form (attached).
4. Remove the probe from the well slowly, drying the cable and probe with a clean tissue.
5. Replace well cap and lock protective cap in place. Repeat decontamination procedures if additional measurements are to be taken.

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Appendix C: Item 20 - WATER LEVEL MONITORING

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: MKR Date: 11/20/89 Approved By: GHE Date: 11/22/89

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### 3.0 EQUIPMENT REQUIREMENTS

- personal protective garment and gear (if applicable)
- water level indicator
- tissues
- Project Field Book

### 4.0 REFERENCES

USEPA, September 1986, RCRA Ground Water Monitoring Technical Enforcement Guidance Document, 9950.1

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# GROUND WATER LEVEL LOG

[illegible]

**MALCOLM  
PIRNIE**

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Appendix C: Item 21 - CONSTANT RATE PUMP TEST

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Applicability: GENERAL Revision No.: 5 Date: 2/9/90

Prepared By: NWT Date: 12/26/89 Approved By: GHF Date: 12/27/89

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## 1.0 INTRODUCTION

This guideline presents a procedure for calculating the hydraulic properties of an aquifer from time drawdown of the water level in a pumping well and/or observation well(s). A pump or pump intake is installed in the proposed production well and the discharge from the well is measured periodically, and regulated as necessary to maintain a constant rate. Although variations from the outlined procedure may be warranted based on program scope and site conditions, the basic elements of the guideline (i.e., pre and post monitoring) should be maintained.

## 2.0 SITE PREPARATION

1. Inventory available equipment and mobilize to a central staging area adjacent to the test location(s).
2. Initiate water level monitoring at frequent intervals in the pump well and any observation wells (if applicable) using an electronic water level indicator or a pressure transducer/data logger, to establish pre-test static water level conditions. Monitor barometric pressure readings using a barometer. Water level and pressure monitoring should continue following the pump test to establish post-test conditions.
3. Assembly of pump/discharge manifold (see Figure 1):
  - pump (pump selection will be based on well construction and the potential for pumping sand);
  - discharge pipe or tubing from pump assembly;
  - swivel;



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Appendix C: Item 21 - CONSTANT RATE PUMP TEST

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Applicability: GENERAL Revision No.: 5 Date: 2/9/90

Prepared By: NWT Date: 12/26/89 Approved By: GHF Date: 12/27/89

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- flow valve;
- water-flow meter (measures to the nearest tenth in gpm);
- sample port and valve for collecting physical and/or chemical samples for analysis;
- tandem flow valves;
- flexible hose to storage tanks or basin; and
- licenced waste hauler(s) or properly lined storage tanks or basin.

### 3.0 METHODOLOGY

1. Lower the pressure transducer into the pump well (if not previously installed during site preparation) and make connections to the data logger. The transducer should be positioned as far below the expected depth of the pump intake to minimize disturbance of the transducers. Install transducers/data loggers at the observation wells (if applicable).
2. Insert the pump assembly into the pump well and lower to its desired depth. Allow the water level to stabilize.
3. Conduct a series of short duration pump tests (Step Tests) in order to determine the discharge potential of the pump well and to test the discharge manifold for leaks and the water-flow meter for accuracy. Allow the water level to restabilize between tests.

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Appendix C: Item 21 - CONSTANT RATE PUMP TEST

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Applicability: GENERAL Revision No.: 5 Date: 2/9/90

Prepared By: NWT Date: 12/26/89 Approved By: GHF Date: 12/27/89

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4. Commence pumping and initiate discharge and drawdown monitoring simultaneously. The pump well discharge should be controlled to keep it as constant as possible by adjusting the flow valve located before the water-flow meter. The tone or rhythm of the generator powering the pump provides an audible check of the pump's performance. If a sudden change in tone is noted, check the discharge immediately and make proper adjustments to the flow valve if necessary.
5. Record discharge and drawdown data as follows:

- Discharge:

<u>Elapsed Time</u>	<u>Log Sample Interval</u>
0 - 1 hr.	15 min.
1 - 6 hr.	1 hr.
6 - completion	4 hr.

- Drawdown:

<u>Elapsed Time</u>	<u>Log Sample Interval</u>
0 - 2 sec.	0.2 sec.
2 - 20 sec.	1 sec.
20 - 120 sec.	5 sec.
2 - 10 min.	30 sec.
10 - 100 min.	2 min.
100 - 1000 min.	10 min.
1000 - 10,000 min.	100 min.
10,000 - completion	500 min.

Water level vs. time measurements should be recorded in the field on semi-log graph paper to monitor the progress of the test.

6. Monitor for visual, olfactory, and other physical parameters (pH, specific conductance, turbidity, and temperature) through the sample port at the same frequency as described above for discharge.

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Appendix C: Item 2f - CONSTANT RATE PUMP TEST

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Applicability: GENERAL Revision No.: 5 Date: 2/9/90

Prepared By: NWT Date: 12/26/89 Approved By: GHF Date: 12/27/89

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7. Frequently inspect (interval to be determined) discharge pipe train and storage capacity to minimize potential for spillage of discharge water.

8. Recovery Test:

- Record the drawdown and time at which pump is shut down.
- Record depth-to-water and time in the pumping and observation wells, following the schedule used at the beginning of the pump test.
- The wells may not recover to the original static water level within a reasonable length of time. Once the slope of the recovery curve stability is at a rate of 0.1-ft/hr. recovery, test measurements can be discontinued.
- Post pump test monitoring should continue at a frequency to be determined, to establish post test conditions.

4.0 REFERENCES

Driscoll, F.G., 1987, "Ground Water and Wells", Johnson Division, St. Paul, Minnesota, 1089 p.

008

## PUMP TEST INFORMATION

Project No. \_\_\_\_\_

Well No. \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

CLIENT: \_\_\_\_\_

LOCATION: \_\_\_\_\_

	<u>PUMP WELL</u>	<u>OBSERVATION WELL(S)</u>
WELL NO.:		
DIAMETER:		
MEASURING POINT (M.P.)		
MEASURING POINT ELEV		
STICK-UP		
TOP OF SCREEN (BELOW M.P.)		
DEPTH OF HOLE (BELOW M.P.)		
SCREEN LENGTH		
SLOT SIZE		
HYDROSTRATIGRAPHIC UNIT		
DEPTH TO PUMP (BELOW M.P.)		
DISTANCE TO OBS. WELL		

START TIME/DATE: \_\_\_\_\_

END TIME/DATE: \_\_\_\_\_

TEST COMPLETED BY: \_\_\_\_\_

DRILLER: \_\_\_\_\_

STATIC LEVELS

PUMP                      OBS.

LOCATION SKETCH

NOT TO SCALE

## PUMP TEST DATA

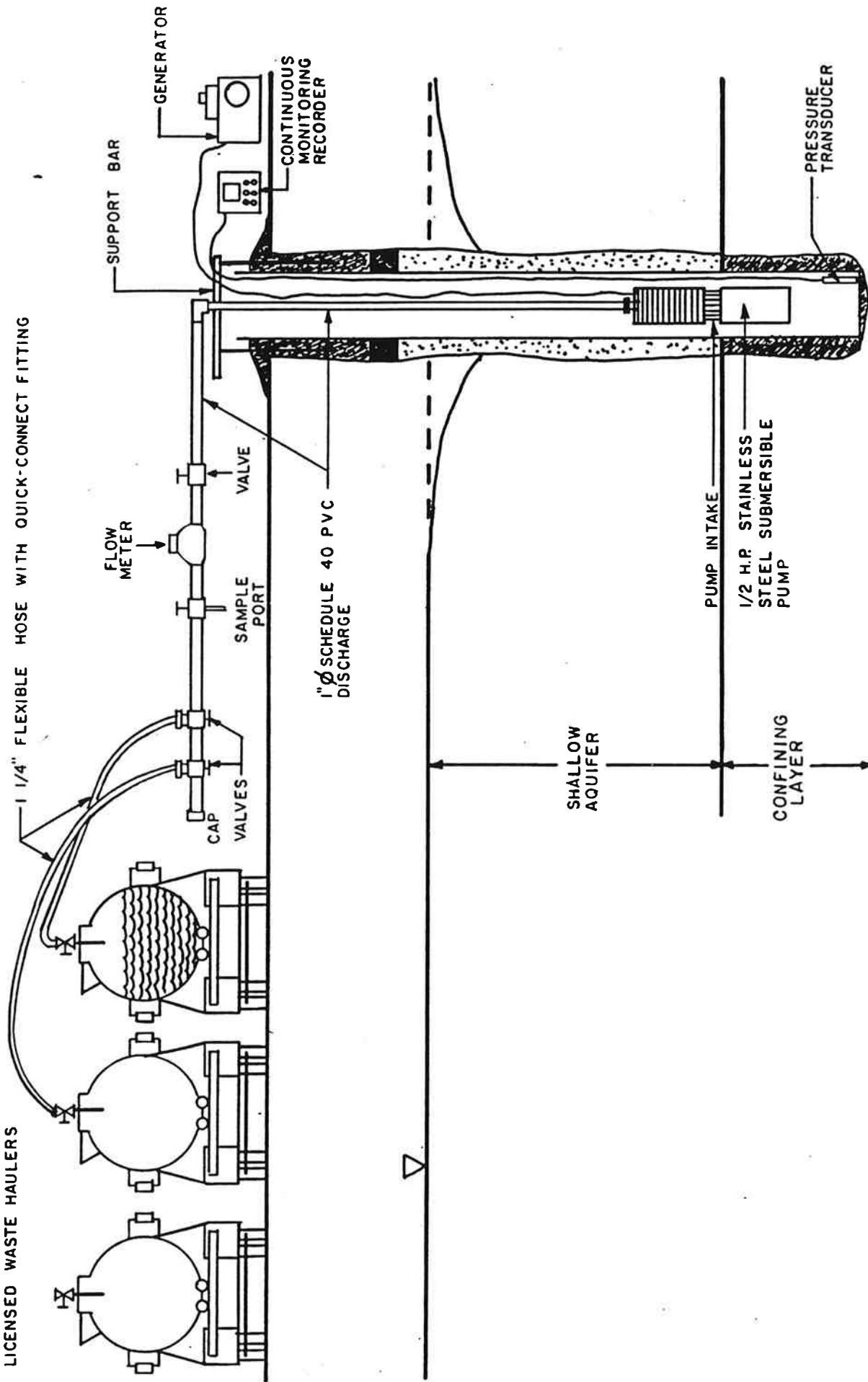
Project No.

Well No.

[illegible]

LICENSED WASTE HAULERS

1 1/4" FLEXIBLE HOSE WITH QUICK-CONNECT FITTING



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Appendix C: Item 22 - HYDRAULIC CONDUCTIVITY AND  
TRANSMISSIVITY DETERMINATION BY  
CONSTANT-RATE PUMPING TESTS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 4/17/90 Approved By: GHE Date: 4/17/90

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### 1.0 GENERAL

This procedure is presented for calculating the hydraulic conductivity and transmissivity of an aquifer from time drawdown of the water level in a pumping well and/or observation well. A pump or pump intake is installed in the proposed production well and the discharge from the well is measured periodically to maintain a constant rate.

### 2.0 DATA COLLECTION PROCEDURES

1. Obtain the static ground water surface (pre-pumping) elevation by measuring the distance from ground water surface to a stable reference point (viz. top of well riser) with an electronic water level indicator. This should be performed on all observation wells to be monitored during test as well as the pumping well.
2. Turn pump on and begin measuring the well discharge rate. This procedure may be performed prior to the actual pump test to ensure the desired discharge.
3. Quickly measure the water level decline with the electronic water level indicator and note the time (elapsed since pumping started) corresponding to that reading). Simultaneously read and record the water level and time in the pumping well according to the following schedule:

<u>Time Since Pumping Began (Min.)</u>	<u>Minutes Between Reading</u>
0 - 5	30 seconds
5 - 20	1 minute
20 - 60	2 minutes
60 - 120	5 minutes
120 - 240	10 minutes
240 - 360	30 minutes
360 - 1,440	60 minutes
1,440 - END	6 hours

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Appendix C Item 22 - HYDRAULIC CONDUCTIVITY AND  
TRANSMISSIVITY DETERMINATION BY  
CONSTANT-RATE PUMPING TESTS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 4/17/90 Approved By: GHF Date: 4/17/90

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4. For observation wells, simultaneously read and record the water level and time according to the following schedule:

<u>Time Since Pumping Began (Min.)</u>	<u>Minutes Between Reading</u>
0 - 10	1 minute
10 - 20	2 minutes
20 - 30	5 minutes
30 - 60	10 minutes
60 - 120	20 minutes
120 - 240	30 minutes
240 - 360	60 minutes
360 - 1,440	120 minutes
1,440 - END	6 hours

5. All readings, discharge measurements, weather conditions, etc. are to be recorded on the field data sheets shown in Section A7.0. Water level vs time measurements should be recorded in the field on semi-log graph paper to monitor the progress of the test.

Recovery Test

1. Record the drawdown and time at which pump is shut down.
2. Record depth-to-water and time, following the schedule used at the beginning of the pump test.
3. The recovery usually will not return to the original static water level within a reasonable length of time, so, when several measurements at one-hour intervals show less than 0.1 ft difference in recovery, measurement may be discontinued.

Date Analysis

1. A constant-rate pump test can be run to determine the coefficients of transmissibility and permeability.
2. If the effects of pumping the well can be measured in one or more observation wells at known distances from the pumping well, the coefficient of storage can also be determined.



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Appendix C: Item 22 - HYDRAULIC CONDUCTIVITY AND  
TRANSMISSIVITY DETERMINATION BY  
CONSTANT-RATE PUMPING TESTS

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Applicability: GENERAL Revision No.:      Date:     

Prepared By: NWT Date: 4/17/90 Approved By: GHF Date: 4/17/90

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3. A good check on the transmissivity value can be made from recovery in the pumped well and of transmissivity and storativity from recovery measurements in observation wells.
4. The effects of all extraneous factors, such as barometric pressure, tidal influence, injection interference, or other pumpage in the nearby area, should be considered and the data adjusted and corrected by applicable correlation techniques.
5. After correction of the raw data to eliminate or reduce the amount of extraneous interference and to adjust for dewatering, hydrographs are prepared showing resulting drawdowns versus time (or  $t/2$ , where      is the distance between the pumping well and the observation well). These are analyzed using the Theis nonequilibrium type curve method or Jacob's modification of the Theis equation.

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**APPENDIX D**

**SECTION 4.0**  
**CONSULTANT/CONTRACTOR EEO**  
**AND**  
**MBE/WBE WORK PLAN FORMS**

**CONSULTANT/CONTRACTOR DETAILED EEO AND MBE/MBE WORKPLAN  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

<b>consultant/contractor name</b> MALCOLM PIRNIE, INC.		<b>contract number</b>	
<b>address:</b> S-3515 Abbott Road P.O. Box 1938	<b>city</b> Buffalo	<b>state</b> NY	<b>zip code</b> 14219
<b>grantee name</b> NYSDEC - Standby Contract		<b>project/grant number</b>	
<b>address</b> 50 Wolf Road	<b>city</b> Albany	<b>state</b> NY	<b>zip code</b> 12233
<b>authorized representative</b> Paul H. Werthman	<b>title</b> Vice President	<b>authorized signature</b>	
<b>contract description</b>  Provide engineering services to the NYSDEC.			

PROJECTED EEO AND MBE/MBE CONTRACT SUMMARY						
	percent	amount		%	No./Emp	Wk./hrs
1. Total Dollar Value of the Prime Contract	100%	15M	5. Total No. Employees/ Work Hours	100%	*	*
2. MBE Goal Applied to the Contract	15%	2.25M	6. Total Goal for Minority Employees	10%	*	*
3. WBE Goal Applied to the Contract	5%	0.75M	7. Total Goal for Female Employees	10%	*	*
4. MBE/WBE Combined Totals	20%	3M	8. EEO Combined Totals	20%	*	*

For the Office of Affirmative Action Use Only		
proposed goals	date approved	date disapproved
MBE (%)		
EEO-Minorities (%)		
WBE (%)		
* To be determined after approval of work plan.		

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**M/WBE UTILIZATION PLAN FOR  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

**NEW YORK STATE SUPERFUND STANDBY CONTRACT  
BB&S TREATED LUMBER SITE  
SPEONK, LONG ISLAND**

**WORK ASSIGNMENT D-002852-15**

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**prepared for:**

**NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION  
DIVISION OF HAZARDOUS WASTE REMEDIATION**

**JANUARY 1996**

**MALCOLM PIRNIE, INC.**

**S-3515 Abbott Road  
P. O. Box 1938  
Buffalo, New York 14219**

## **1.0 INTRODUCTION**

### **1.1 GENERAL**

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This MBE/WBE Plan documents the good faith efforts to be undertaken to comply with the requirements of the New York State Superfund Contract (Contract D002852) to subcontract with minority and women owned business enterprises and to employ minorities and women. The purpose of the MBE/WBE plan is to demonstrate and document Malcolm Pirnie's intention to make a good faith efforts to meet the goals as stated in the contract. These goals are as follows:

1. The Contractor agrees to make good faith efforts to subcontract at least 15 percent of the dollar value of this contract to Minority Owned Business Enterprises (MBE's) and at least 5 percent of such value to Women Owned Business Enterprises (WBE's).
2. The Contractor agrees to make good faith efforts to employ or contractually require any Subcontractor with whom it contracts to make good faith efforts to employ minority group members for at least 10 percent of, and women for at least 10 percent of, the work force hours required to perform the work under this Contract.

The work encompassed in the Department of Environmental Conservation work order (D002852-15) is a complicated work effort requiring specialized expertise to be performed under stringent time constraints. This MBE/WBE Utilization Plan has been prepared to address MBE/WBE involvement in the tasks under the New York State Department of Environmental Conservation work order D002852-15 for conducting the Remedial Investigation/Feasibility Study at the BB&S Treated Lumber Site. Our plan to achieve the MBE/WBE goals factors in expertise required, time constraints and Subcontractor requirements. This specific plan incorporates the provisions of Malcolm Pirnie's overall plan for this contract entitled "MBE/WBE Utilization Plan for New York State DEC Standby Contract," July 1991.

## **2.0 MALCOLM PIRNIE CORPORATE AFFIRMATIVE ACTION STATEMENT**

### **2.1 AFFIRMATIVE ACTION STATEMENT**

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Malcolm Pirnie supports the New York State Department of Environmental Conservation's commitment to women and minority business owned enterprises. The firm will make every effort to meet or exceed the 15% MBE and 5% WBE goals for this contract. Malcolm Pirnie is in full compliance with Title VII of the Civil Rights Acts of 1964, as amended by the Equal Employment Opportunity Act of 1972.

It is our policy to provide equal opportunity to all qualified persons without regard to race, color, religion, sex, age, national origin, physical handicaps, sexual or affectional preference or marital status, and to promote the full realization of equal opportunity through a positive continuing affirmative action program.

The firm assures applicants and staff members that equal opportunity and equal consideration is afforded in personnel actions with respect to recruiting and hiring, development programs, job assignments, promotion, compensation, transfer, and other status changes.

It is the objective of the firm to provide full employment opportunities for members of minority groups and to employ meaningful numbers at all job levels through effective upgrading and recruiting. Toward this end, the firm's Manager of Human Resources has the responsibility for ensuring that Malcolm Pirnie is in compliance with all aspects of federal and state civil rights laws.

The firm communicates its equal opportunity policy to all relevant audiences within and outside the firm by the following means:

- Non-discrimination policy statements in the Malcolm Pirnie Policy and Procedure Manual and Staff Member Handbook.
- Periodic written and oral statements of policy from Officers of the firm to the management staff.

- Discussion of policy and affirmative action plans at management meetings.
- Employment advertising.
- Oral and written policy statements to public and private employment agencies, universities, community leaders and Subcontractors.

Malcolm Pirnie has appointed Mr. John T. O'Neill to serve as the firm's Equal Employment Opportunity Officer. He is duly authorized to supply reports and represent the firm in all matters regarding its Affirmative Action Plan.

The name of the Equal Opportunity Officer and the Equal Employment Opportunity Policy Statement is posted in a conspicuous place in all offices.

The Equal Employment Opportunity Officer is responsible for the following:

- Assuring that all supervisory personnel are instructed with respect to their responsibilities regarding equal opportunity and non-discrimination.
- Reviewing the program periodically with all supervisory personnel to ensure that the program is being implemented at all levels.
- Holding every manager and supervisor accountable for helping to meet goals to correct deficiencies in the utilization analysis.
- Conducting periodic audits of employment practices, and addressing any complaints concerning discriminating practices.
- Reviewing job descriptions and hiring criteria to ensure that they include only actual job needs.
- Advising all employees upon employment that the firm is an Equal Opportunity Employer, and that hiring, training, promotions or demotions are based only on the individual's qualifications and ability to perform the work.
- Devising formal communication programs to disseminate the equal employment policy both within the organization and to the public.
- Maintaining relationships with municipal Human Relations representatives regarding all matters pertaining to affirmative action in general, and recruitment in particular.
- Notifying appropriate state and municipal employment service organizations regarding vacancies or promotions, to ensure equal opportunity.



- Encouraging minority personnel within the firm to recruit other minorities.
- Maintaining all facilities and firm activities on a nonsegregated basis.
- Seeking to utilize minorities and women to the same degree as all others, based on the following factors as reflected in the recruiting area:
  - Minority population in the recruiting area;
  - Size of unemployed minority forces in the recruiting area;
  - Percentage of minority work force as compared with the total workforce in the recruiting area;
  - Local availability of minorities having the skills required by the firm;
  - Availability of promotable and transferable minority employees within the firm;
  - Existence of training institutions capable of training persons in the required skills; and
  - Degree of training the firm is reasonably able to undertake as a means of making all job classes available to minorities.
- Goals will be established for each group in which under utilization exists. Documentation will be maintained to substantiate the fact that a good faith effort was made to correct the under utilization.
- The following records of employees classified by race distribution, sex and job classification will be maintained annually:
  - Total work force analysis;
  - New hires and the source of hires;
  - Terminations with reason for termination;
  - Promotions; and
  - Employees trained.

It is the policy of Malcolm Pirnie to consider applicants for training and upward mobility programs that may be necessary without regard to race, religion, color, sex, age, physical handicap or any other factor unrelated to job performance. Malcolm Pirnie also

supports career counseling, and training and development for all employees. Minorities and women are encouraged and afforded every opportunity to participate in all company-sponsored educational, training, recreational, professional and social activities.

Questions regarding this Affirmative Action Plan should be directed to Malcolm Pirnie's EEO Officer, John T. O'Neill, at our corporate offices:

John T. O'Neill  
EEO Officer  
Malcolm Pirnie, Inc.  
Box 751  
2 Corporate Park Drive  
White Plains, New York 10602  
(914) 694-2100

### **3.0 GOOD FAITH EFFORTS UNDERTAKEN TO ENSURE MBE/WBE PARTICIPATION**

#### **3.1 GENERAL**

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The tasks identified by the NYSDEC in the RI/FS work assignment are as follows:

1. Work Plan Development/Mobilization
2. Remedial Investigation
3. Engineering Evaluation
4. Phase II Remedial Investigation
5. Feasibility Study

Malcolm Pirnie has sufficient qualified personnel in-house to perform most of these tasks without Subcontractor involvement; however, Subcontractors/Suppliers may be needed to assist or provide services in the following areas.

1. Analytical Services
2. Data Validation
3. Reproduction of report documents
4. Professional Services

#### **3.1 WORK ASSIGNMENT WBE/MBE GOALS**

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The estimated cost of this work assignment as currently budgeted (November 1995) is \$326,994. Based on the goals stated in the contract, our MBE and WBE goals for this project are as follows:

MBE (15%)	\$49,049.10
WBE (5%)	<u>\$16,349.70</u>
Total MBE/WBE Goal	<u>\$65,398.80</u>

**3.2 AREAS OF POTENTIAL MBE/WBE PARTICIPATION**

---

MBE/WBEs will be and have been included in the selection of all Subcontractors for this work. The possible areas of MBE/WBE participation are presented in the following sections.

**3.3.1 Analytical Service**

Malcolm Pirnie has retained Engineering and Environment, Inc. (EEI), a certified MBE firm, under one of four standby contracts for analytical services. In accordance with NYSDEC procedures, each of the four analytical laboratories will be afforded an opportunity to provide a cost quotation for laboratory services, if required. The laboratories ability to perform the work requested as well as a comparison of cost quotations will be used to determine which laboratory will be assigned to the project. The estimated cost based on unit rates in subcontract agreement from EEI for analytical services is \$55,235.

**3.3.2 Data Validation Service**

Malcolm Pirnie has retained Nancy Potak, a certified WBE firm, under one of three standby contracts for data validation services. In accordance with NYSDEC procedures, each of the three data validation subcontractors will be afforded an opportunity to provide a cost quotation for data validation, if required. The validators ability to perform the work requested as well as a comparison of cost quotations will be used to determine which subcontractor will be assigned to the project. The estimated cost based on Nancy Potak's unit cost rates in subcontract is \$5,905.25

**3.3.3 Reproduction**

An WBE reproduction facility (AE Blue Printing) will be utilized for reproduction of documents. Selection of this M/WBE firm was based on a comparison of bills from three (3) eligible firms:

- The Copy Cat
- AE Blue Printing

A fourth firm, Insty-Prints declined to bid. The cost of this reproduction is estimated at \$1,123.20.

#### **3.3.4 Professional Service**

Malcolm Pirnie has retained Edward O. Watts, P.E., P.C. a certified MBE firm, under one of five standby contracts for professional services. In accordance with NYSDEC procedures, each of the five professional services firms were afforded an opportunity to provide a cost quotation for professional services. The selection of the professional services firm was based on the ability to perform the work requested as well as a comparison of cost quotations. The estimated cost for professional services is \$40,809.93

#### **3.3.5 Procurement of Additional Services of \$10,000 or Less**

If services are needed in areas not previously identified and the cost of these services are \$10,000 or less, services will be procured from MBE's and/or WBE's in accordance with the requirements identified in the letter from Vicente Alfonso, NYSDEC, dated June 1, 1992.

SECTION I. - MBE INFORMATION: In order to Achieve the MBE and WBE goals, MBE/WBE Firms are expected to participate in the following manner:

MBE Firm	Description of Work Quantities Involving MBE	Projected MBE Contract Amount and Award Date	Contract Schedule Start Date	Contract Payment Schedule	Project Completion Date
name: Engineering and Environ- ment, Inc. address: Pembroke One Building Suite 318 city: Virginia Beach state/zip code: Virginia 23462 telephone number: (804) 490-4653	Analytical Services	\$55,235 Date: <u>As Needed</u>	2/1/96	Monthly	7/1/96
name: Nancy Potak address: RR#1 Box 1295 city: Greensboro state/zip code: Vermont 05841 telephone number: (802) 533-9206	Data Validation	\$5,905.25 Date: <u>As Needed</u>	2/1/96	Monthly	7/1/96
name: AE Blueprinting address: 4050 Ridge Lea Road city: Amherst state/zip code: 14228 telephone number: (716) 834-4579	Reproduction	\$1,123.20 Date: <u>As Needed</u>	7/1/96	Monthly	2/28/97

\* TBD - To Be Determined.

\*\* Price based selection, competitive with two other Standby drillers if pilot test is required.

SECTION I. - WBE INFORMATION: In order to Achieve the MBE and WBE goals, MBE/WBE Firms are expected to participate in the following manner:

MBE Firm	Description of Work Quantities Involving WBE	Projected WBE Contract Amount and Award Date	Contract Schedule Start Date	Contract Payment Schedule	Project Completion Date
name: Edward O. Watts, P.E., P.C.	Professional Services	\$40,809.93 Date: <u>Dec. 1995</u>	12/1/95	Monthly	7/31/96
address: Suite 220 1331 N. Forest Road					
city: Buffalo					
state/zip code: New York 14221					
telephone number: (716) 688-4827					
name: TBD*					
address:					
city:					
state/zip code:					
telephone number:					
name: TBD*					
address:					
city:					
state/zip code:					
telephone number:					

\* TBD - To Be Determined.

SECTION I. - MBE INFORMATION: In order to Achieve the MBE and WBE goals, MBE/WBE Firms are expected to participate in the following manner:

MBE Firm	Description of Work Quantities Involved by MBE	Projected MBE Contract Amount and Award Date	Contract Schedule Start Date	Contract Payment Schedule	Project Completion Date
name:					
address:					
city:					
state/zip code:					
telephone number:					
name: TBD*					
address:					
city:					
state/zip code:					
telephone number:					
name:					
address:					
city:					
state/zip code:					
telephone number:					

\* TBD - To Be Determined.



SECTION III.- EEO INFORMATION: In order to Achieve the EEO Goals, Minorities and Females are expected to be Employed in the Following Job Categories for the Specified Amount of Work Hours:

Job Categories	Total Work Hours of Contract	All Employees		Minority Employees			
		Males	Females	Indian	Asian	Native American	Hispanic
Officials/Managers	278	40	238				
Professionals	2,247	1,156	871	220			
Technicians							
Sales Workers							
Office/Clerical	190		190				
Craftsmen							
Laborers							
Service/Workers							
TOTALS	2,715	1,196	1,299	220			

**MALCOLM  
PIRNIE**

**APPENDIX E**  
**CITIZENS PARTICIPATION PLAN**

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**CITIZENS PARTICIPATION PLAN FOR  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
BB&S TREATED LUMBER CORPORATION SUPERFUND SITE**

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**Prepared for:**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF HAZARDOUS WASTE REMEDIATION**

**JANUARY 1996**

**MALCOLM PIRNIE, INC.**

**S-3515 Abbott Road  
P. O. Box 1938  
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**CITIZENS PARTICIPATION PLAN FOR REMEDIAL INVESTIGATION  
BB&S TREATED LUMBER SITE****TABLE OF CONTENTS**

	<b>Page</b>
1.0 INTRODUCTION .....	1
1.1 PROJECT OVERVIEW .....	1
1.2 SITE DESCRIPTION .....	2
1.3 SITE BACKGROUND .....	2
2.0 PROJECT DESCRIPTION .....	4
2.1 PROJECT OBJECTIVE .....	4
2.1.1 Project Objective .....	4
2.1.2 Project Contact Personnel .....	4
3.0 CITIZEN PARTICIPATION ACTIVITIES .....	6
3.1 OVERVIEW .....	6
3.2 PUBLIC CONTACT LISTS .....	6
3.3 DOCUMENT REPOSITORIES .....	11
3.4 SIGNIFICANT DOCUMENTS .....	11
3.5 PROJECT COMPONENTS .....	12
3.5.1 Development of the Scope-of-Work for the RI/FS .....	12
3.5.2 Remedial Investigation .....	13
3.5.3 Engineering and Feasibility Study .....	13
4.0 GLOSSARY .....	15
4.1 COMMONLY USED CITIZEN PARTICIPATION TERMS .....	15
4.2 SIGNIFICANT ELEMENTS AND TERMS OF THE REMEDIAL PROGRAM .....	16

**LIST OF ATTACHMENTS****Attachment   Description**

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1       Mailing List

## **1.0 INTRODUCTION**

### **1.1 PROJECT OVERVIEW**

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The BB&S Treated Lumber Corporation (BB&S) is an active lumber preserving facility that has been in operation for over 12 years. The process uses chromate copper arsenate (CCA) as a wood preservative. Discharges of CCA to the ground have contaminated the groundwater in excess of drinking water standards for arsenic and chromium. The presence of these compounds in a sole source aquifer represents a significant threat to public health and the environment. As a result, the New York State Department of Environmental Conservation (NYSDEC) has issued Work Assignment #D002852-15, authorizing the development and implementation of a Remedial Investigation/Feasibility Study (RI/FS) that will define the extent of contamination and the risks associated with the contamination and determine the most appropriate method for remediating the Site. Citizen participation is part of the RI/FS process.

The Citizen Participation Program is aimed at increasing public understanding of the remedial process. It's purpose is to keep the public abreast of the activities at the site including the site investigation and remedial measures, through periodic activities such as public meetings and mailings. The Citizen Participation Program also opens up two-way communication between the public and the appropriate State departments. This communication provides the NYSDEC with an opportunity to:

- Obtain site information from you that will assist in implementing the design and construction of the adopted remedial action plan.
- Answer your questions and learn your concerns regarding the site and the remedial process.

Under the New York State Hazardous Waste Site Remedial Program, the process begins with the discovery of a potential hazardous waste site and follows a path through investigation, enforcement, remedial action selection, design, construction, and monitoring.

To keep the public informed and involved regarding activities at the site, the Department will:

- Establish a local Document Repository which will contain all pertinent documents relating to the investigation and remediation of the site.
- Ensure that all fact sheets, meeting notifications, and other informational materials are accurate and appropriately written.
- Hold public meetings, if needed, to meet with interested parties to discuss plans, concerns, or questions about the site.

## **1.2 SITE DESCRIPTION**

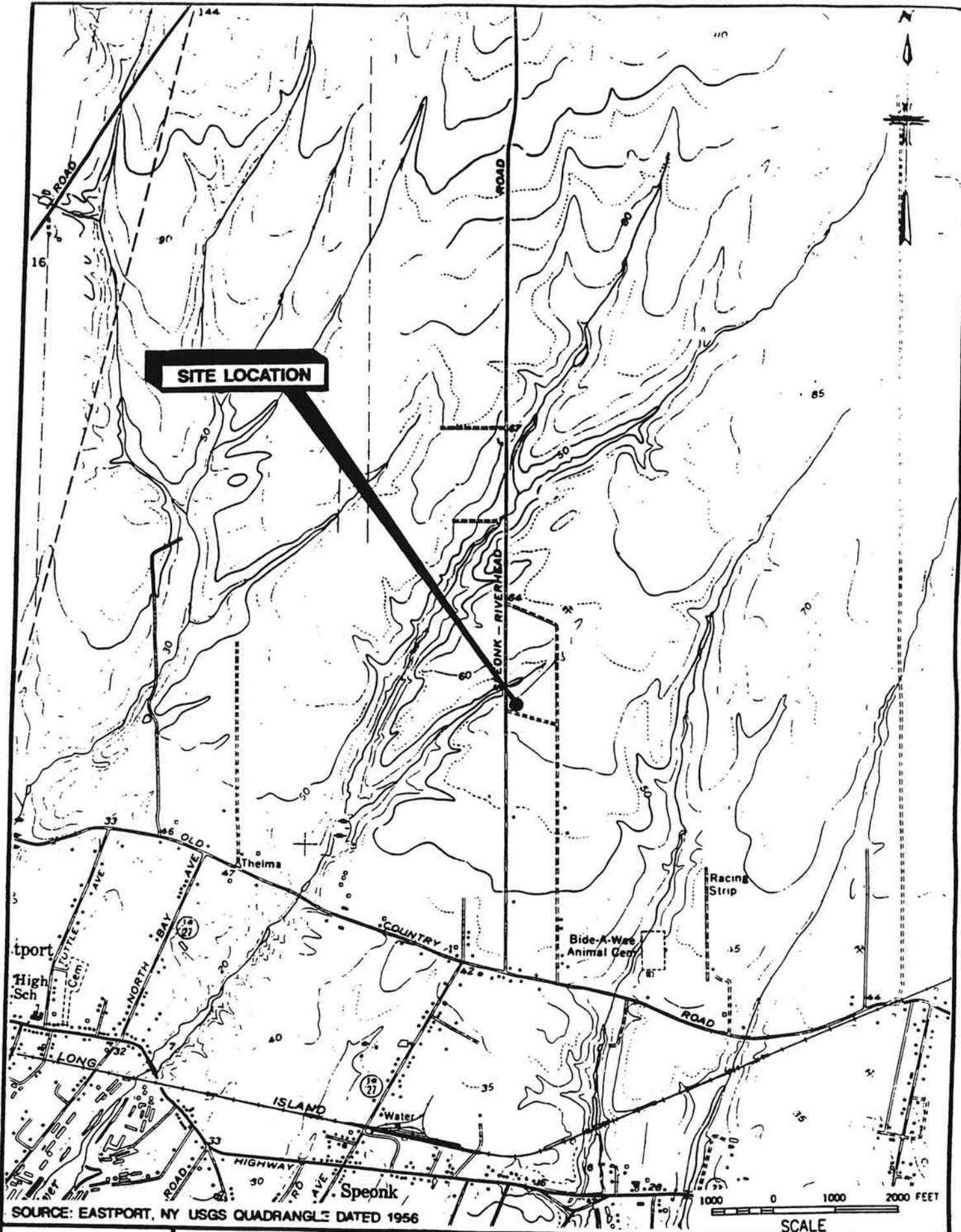
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The BB&S Treated Lumber Corporation is an active lumber preserving facility that has been in operation for over 12 years. The 10-acre site is located in southern Suffolk County on Speonk-Riverhead Road (Figure 1). The facility pressure treats lumber with CCA. As a result of this process, two areas of environmental concern have been identified where releases of CCA compounds have occurred. The first area where these compounds are believed to have entered the soil and groundwater is from concrete sumps located within the process building which collect excess preservative from the treatment area. It is suspected that the integrity of the concrete sumps has been compromised allowing CCA compounds to enter the environment. The second area is the drip area where lumber is stacked after treatment until dry.

## **1.3 SITE BACKGROUND**

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In April of 1985, the Suffolk County Department of Health Services (SCDHS) collected groundwater samples from supply wells located at BB&S. Analytical results indicated exceedances of the New York Drinking Water Standards for arsenic and chromium. Arsenic was detected in the groundwater samples at concentrations greater than 1,200 parts per billion (ppb) and chromium was present in the groundwater samples at concentrations greater than 11,000 ppb.



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SPEONK, NEW YORK  
**SITE LOCATION MAP**

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**FIGURE 1**

The facility hired an environmental consulting firm to investigate and remediate the Site. A groundwater collection system using reverse osmosis for groundwater treatment was designed and installed. The system required a State Pollutant Discharge Elimination System (SPDES) permit to regulate the discharge of treated groundwater back on to the site. The SPDES permit was issued in May of 1988. However, according to the NYSDEC Division of Water's file, the pumping and treatment system never worked effectively and has consistently failed to meet the effluent limitations set forth in the SPDES permit. The Site was first listed as a Class 2a site in May of 1988. In March of 1993, it was reclassified as a Class 2 site. A classification of Class 2 indicates a significant threat to the public health or the environment.

The Site was ultimately referred for a State Superfund RI/FS in July of 1995. On September 29, 1995, State Superfund Standby Contract Work Assignment #D002852-15 was issued, authorizing the development and performance of a RI/FS, thus making this a state-lead site (see "Significant Elements of the Remedial Program" for definitions).



## 2.0 PROJECT DESCRIPTION

### 2.1 PROJECT OBJECTIVE

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#### 2.1.1 Project Objective

The objective of the project is to develop and implement a RI/FS as called for in the NYSDEC Work Assignment. Work on the Remedial Investigation will be completed in the Winter/Spring 1996. The anticipated dates for the significant elements of the RI/FS process are listed below.

<i>Winter 1996</i>	Approval of the RI/FS Work Plan. Rehabilitation of existing monitoring wells on site. Conduct the first round of groundwater sampling.
<i>Late Winter/Early Spring 1996</i>	Collect 9 surface soil samples. Install and sample 6 Hydropunch points and 6 subsurface soil borings.
<i>Spring 1996</i>	Conduct the Fish and Wildlife Impact analysis. Commence Engineering Evaluation. Receipt of analytical data and performance of data validation.
<i>Summer 1996</i>	Submit Data Validation/Usability Report. Commence Human Health Risk Assessment.
<i>Fall 1996</i>	Submit Draft Remedial Investigation Report with Draft Engineering Evaluation.
<i>Winter 1996</i>	Prepare Feasibility Report, Approval of Remedial Investigation Report.
<i>Spring 1997</i>	Submit Feasibility Report.
<i>Summer 1997</i>	Approval of Feasibility Report.
<i>Fall 1997</i>	Issue Record of Decision.

#### 2.1.2 Project Contact Personnel

The following individuals are available to answer your questions regarding:

##### *General Information or Questions:*

Ms. Sally W.W. Dewes  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-7010  
(518) 457-3395

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***Technical Information:***

Ms. Sally W.W. Dewes  
New York State Department of Environmental Conservation  
50 Wolf Road  
Albany, New York 12233-7010  
(518) 457-3395

***Potential Environmental Exposure:***

Mr. Timothy Vickerson  
New York State Department of Health  
11 University Plaza  
Albany, New York 12203-3399  
(518) 458-6423

***Citizen Participation:***

Mr. Joshua Epstein  
New York State Department of Environmental Conservation  
State University of New York - Stony Brook  
Loop Road  
Stony Brook, New York 11794  
(516) 444-0249

### **3.0 CITIZEN PARTICIPATION ACTIVITIES**

#### **3.1 OVERVIEW**

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This Section describes the specific citizen participation activities planned to be carried out during the BB&S Treated Lumber RI/FS Project. These activities will be developed in phases as the remedial program progresses, and may be supplemented as the NYSDEC Project Manager and assigned Citizen Participation Specialist gain insight into local interest in the project, or as the Technical program and information on the site changes.

All information materials must be reviewed and approved by the NYSDEC Project Manager, assigned Citizen Participation Specialist, and appropriate NYSDOH personnel for clarity and accuracy prior to release to the public.

#### **3.2 PUBLIC CONTACT LISTS**

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The boundaries used to generate the resident contact list are: Route 27 to the north, Old Country Road to the south, 5th Avenue on the east and Homestead Avenue on the west. These boundaries are shown on Figure 2.

The NYSDEC has established a preliminary site mailing list. This contact list will be updated by the NYSDEC following each public meeting or mailing, and as additional interested citizens are identified. The current contact list for the site contains:

##### Federal Officials and Organizations

Senator Alfonse M. D'Amato  
U.S. Senate  
Hart Senate Office Building, Room 520  
Washington, DC 20510

Senator Daniel Patrick Moynihan  
U.S. Senate  
464 Russel Senate Office Bldg.  
Washington, DC 20510-3201

Congressman Michael Forbes  
502 Cannon  
House Office Building  
Washington, DC 20515

United States of America  
Department of the interior  
Washington, DC 20242

State Officials and Organizations

Senator Martin Conner  
State Capital, Room 314  
Albany, NY 12247

Legislator George O. Guldi  
P.O. Box 599  
Sag Harbor, NY 11963

Governor George Pataki  
The State Capital  
Executive Chamber  
Albany, NY 12224

Ms. Sally W.W. Dewes  
NYSDEC  
50 Wolf Road  
Albany, NY 12233

Mr. Joshua Epstein  
NYSDEC  
SUNY at Stony Brook  
Loop Road  
Stony Brook, NY 11794

Senator Joseph L. Bruno  
State Capital, Room 330  
Albany, NY 12247

Nina Knapp, NYS Dept. of Health  
Health Liaison Program  
2 University Pl., Rm 240  
Albany, NY 12203

Regional/County and Local Officials,  
Boards and Organizations

Southampton Police Department  
23 Main Street  
Southampton, NY 11968  
Attn: James Overton

Southampton Fire Department  
Main Street  
Southampton, NY 11968  
Attn: John Rankin

Mr. Richard Blowes  
Deputy Supervisor  
116 Hampton Road  
Southampton, NY 11968

Ms. Martha M. Rogers  
Town Council  
116 Hampton Road  
Southampton, NY 11968

Mr. Douglas R. Penny  
Town Council  
116 Hampton Road  
Southampton, NY 11968

Mr. Patrick Heaney  
Town Council  
116 Hampton Road  
Southampton, NY 11968

Ms. Barbara Gubbins  
Town Council  
116 Hampton Road  
Southampton, NY 11968

Mr. Scott A. Strough, Pres of Board  
Town Trustee  
116 Hampton Road  
Southampton, NY 11968

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Mr. Jon S. Semlear  
Town Trustee  
116 Hampton Road  
Southampton, NY 11968

Mr. Edward J. Warner  
Town Trustee  
116 Hampton Road  
Southampton, NY 11968

Mr. William Bennett  
Town Trustee  
116 Hampton Road  
Southampton, NY 11968

Mr. Robert J. Gaffney  
Suffolk County Executive  
888 Veterans Memorial Hwy  
Hauppauge, NY 11788-0099

Mr. E. Peter Corwith  
Town Trustee  
116 Hampton Road  
Southampton, NY 11968

Mr. Steve Kenny  
Chairman, Planning Board  
116 Hampton Road  
Southampton, NY 11968

Mr. Sy Robbins  
Suffolk County Dept. of Health Services  
225 Rabbro Dr. East  
Hauppauge, NY 11788

Suffolk County Department of Law  
c/o Dorothy Klewicki  
888 Veterans Memorial Highway  
Hauppauge, NY 11788

Suffolk County  
330 Center Drive  
Riverland, NY 11901-3311

*Nixon Hargrave  
940 Stewart Ave  
Garden City NY 11530  
Attn: Nancy Schrecher (8-14-96)  
Frank Amoroso request*

Civic Environmental Organizations and  
Other Public Interest Groups

Ms. Lorraine Kuehn, President  
Manorville Taxpayers Association  
P. O. Box 1  
Manorville, NY 11947

Mr. Joseph F. May  
Mastic Park Civic Association  
P. O. Box 560  
Mastic, NY 11950

Marilyn England, President  
Open Space Council  
P. O. Box 275  
Brookhaven, NY 11719

Ms. Joanna Ferraro-Levy  
Citizens Advocates  
116 Hampton Road  
Southampton, NY 11968

Joel Petersen, President  
Speonk-Remsenburg Civic Association  
P. O. Box 578  
Speonk, NY 11972

Richard Amper, Executive Director  
Long Island Pine Barrens Society  
P. O. Box 429  
Manorville, NY 11530

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Bob DeLuca, Executive Director  
Group for the South Fork  
P. O. Box 569  
Bridgehampton, NY 11932

ABCO (Affiliated Brookhaven Civic  
Organization)  
P. O. Box 176  
Centereach, NY 11720

Laura Monsi, Director (or current)  
Suffolk County Water Authority  
4060 Sunrise Highway, P. O. Box 38  
Oakdale, NY 11769

Long Island Citizens Advisory Committee  
on Hazardous Waste (LICAC-HW)  
Send to and list both co-chairs, these are:

Jeff Fullmer  
c/o Citizen Campaign for the Environment  
550 Smithtown By Pass  
Suite 205  
Smithtown, NY 11787

Rosemary Konatich  
NYS Legislative Com, LI Water  
11 Middle Neck Road, Suite 200  
Great Neck, NY 11020

Anita Gabalski  
Spec. Asst. to N. Sullivan  
NYSDEC Environ Quality  
50 Wolf Road  
Albany, NY 12233-1014

Anthony Leteri  
LIA-USA Recycling  
499 Lawrence Road  
Kings Park, NY 11754-2028

Barbara Shilling  
NYS Office Bldg.  
Room 3841  
Hauppauge, NY 11787

Carole Wilder  
NYS Assoc./Conserv. Commissions  
278 Waldo Street  
Copiague, NY 11726

Dennis Kellerher  
H2-M  
575 Broadhollow Road  
Melville, NY 11747

Dr. Frances Sterrett  
Hofstra University  
64 Hathaway Drive  
Garden City, NY 11532

Harold Berger  
Enviror. & Econ. Roundtable  
30 Eastwood Lane  
Valley Stream, NY 11581

Jack Finkenberg  
Open Space Council  
25 Prospect Street  
Babylon, NY 11702

Joan Vecchione  
Citizens for Pure Water  
506 Bay Avenue  
Massapequa, NY 11758

John Turner  
Assemblyman Steven Englebright  
149 Main Street  
East Setauket, NY 11733

Judy Jakobsen  
Suffolk Co. Water Authority, Watershed  
Admin. Off., P. O Box 38  
Oakdale, NY 11769

## **MALCOLM PIRNIE**

Kathy Geiger  
Brookhaven Commun. Relations  
BNL, Building 51M  
Upton, NY 11973

Mary Dowden  
120 Fourth Street  
Garden City, NY 11530

Peter Quinn  
LI Progressive Coalition  
675 Tanglewood Lane  
West Islip, NY 11795

Rosemary Konatich  
NYS Legis, Comm. LI Water  
11 Middle Neck Road, Suite 200  
Great Neck, NY 11021

Sarah Meyland, Esq.  
Citizens Campaign for the Environment  
17 Highridge Drive  
Huntington, NY 11743

### Media Contacts

The East Hampton Star  
P. O. Box 5002  
153 Main Street  
East Hampton, NY 11937

The Sag Harbor Express  
c/o Coastal Publications, Inc.  
P. O. Box 1620  
Main Street  
Sag Harbor, NY 11963

The Southampton Press  
P. O. Box 1207  
135 Windmill Lane  
Southampton, NY 11969

Shirley Siegal  
Nass. Co. League of Women Voters  
25 Cooper Drive  
Great Neck, NY 11023

Mr. Douglas Bedard  
Citizen Advisory Committee  
116 Hampton Road  
Southampton, NY 11968

Mr. Paul Brennan, Chairman  
Environmental Advisory Committee  
116 Hampton Road  
Southampton, NY 11968

Ms. Lynn Lamontogue  
The Nature Conservancy  
P.O. Box 5125  
East Hampton, NY 11937

Newsday, Government Watch Section  
235 Pinelawn Road  
Melville, NY 11747

The East End Senior Advocate  
P. O. Box 313  
New Suffolk, NY 11956

WLTV Channel 27  
P. O. Box 2000  
Sag Harbor, NY 11963

WLIG News Radio 1600  
2700 South Service Road  
Melville, NY 11747

Hampton Chronicle  
P.O. Box 1071  
West Hampton Beach, NY 11978

### **3.3 DOCUMENT REPOSITORIES**

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Document repositories are established at the following locations, to make site documents easily accessible for the public to read and review. During the remedial process various documents will be placed in these repositories as they become available. The Department encourages you to use these repositories and review site documents prior to attending public meetings whenever possible. The document repositories for this site are:

New York State Department of Environmental Conservation  
State University of New York - Stony Brook  
Loop Road  
Stony Brook, New York 11794  
(516) 444-0249

Rogers Memorial Library  
9 Jobs Lane  
Southampton, New York 11968  
(516) 283-0774

### **3.4 SIGNIFICANT DOCUMENTS**

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All reports pertaining to the various investigations at the BB&S Treated Lumber site as well as related studies and legal documents are currently available for review in NYSDEC's Albany, New York office.

As various documents become available during the remedial design and construction they will automatically be placed in both Document Repositories by the NYSDEC. These documents may include:

- Request for Proposals
- Project Scoping Plan
- RI/FS Work Plan
- Fact sheets/newsletters, etc.



- Health and Safety Plans
- Testing, sampling and monitoring data
- Consent Orders, Judgements and Stipulations
- Quality Assurance/Quality Control Plans
- Final work plans
  
- Data Usability Report
- All responsiveness summaries
- Citizen Participation Plan
- RI/FS Report
- Engineering Evaluation Report

### **3.5 PROJECT COMPONENTS**

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The anticipated dates for the significant elements of Citizen Participation Plan are listed below:

<i>Winter 1996</i>	Mailing of first Fact Sheet. Public information meeting to present the Work Plan.
<i>Fall 1996</i>	Mailing of second Fact Sheet. Public information meeting to present RI results.
<i>Fall 1997</i>	Mailing of third Fact Sheet. Public information meeting to present the proposed remedial action plan and issuance of the Record of Decision

As previously noted, additional citizen participation activities may be added, and the plan revised, at the discretion of the NYSDEC to reflect changes in the status of the site or public interest in the site. Malcolm Pirnie will assist the NYSDEC as needed in preparation of fact sheets, mailings, and participation in public meetings. Below are listed the major elements of the BB&S Treated Lumber RI/FS Project and the citizen participation activities that are currently planned for each element.

#### **3.5.1 Development of the Scope-of-Work for the RI/FS**

The NYSDEC will prepare and mail out to the contact list the first fact sheet explaining the proposed RI/FS process for the BB&S Treated Lumber site. The fact sheet will:

- Provide the site history.
- Identify appropriate agency contacts.
- List the document repositories.
- Summarize the proposed remedial investigation.
- Reference the health and safety plan.

In addition, the NYSDEC will prepare a public notice and hold an informal public meeting to exchange information with interested/affected public about the proposed RI/FS. Once this is complete, one copy of the final work plan for the RI/FS will be placed in the project's document repository listed in Section 3.3, and a notice of the availability of the final RI/FS work plan will be mailed to parties identified on the contact list in Section 3.2.

### **3.5.2 Remedial Investigation**

Upon completion of remedial investigation tasks, a copy of the Draft RI will be placed in the local document repository and public notice via a second fact sheet will be provided to summarize work performed. Public notice of the availability of the draft will be mailed to parties included on the contact list.

A public information meeting will be held to present the findings of the Draft RI, receive public comment, and describe future work, as necessary. The meeting will be announced through public notice in local news media and a letter sent to the contact list. A transcript of the public meeting shall be prepared and made available for public inspection. The public will have a minimum of 30 days for submission of written comments on the Draft RI. A brief summary of responses to the comments submitted will be prepared and mailed using the contact list. A copy of the final RI will be placed in the document repository.

### **3.5.3 Engineering Evaluation and Feasibility Study**

Upon completion of the feasibility task, a copy of the Draft FS will be placed on the local document repository and public notices via a third fact sheet will be provided to summarize the activities and results of the work performed. A public meeting will be held to present the findings of the FS report; discuss possible remedial alternatives, and present the proposed remedial action plan. A transcript of the public meeting shall be prepared and made available for public inspection. The meeting will be announced through public

notice in local news media and a letter sent to the contact list. The public will have a minimum period of 30 days for submission of written comments on the Draft FS. A brief summary of responses to the comments submitted will be prepared and mailed using the contact list. A copy of the Final FS will be placed in the documents repository.

Further actions will be initiated as necessary and as indicated in the Final FS Report. The NYSDEC will publish a public notice announcing proposed implementation of the remedial alternative selected. The NYSDEC will also prepare a Record of Decision (ROD) documenting the decision process used to determine the remedial actions deemed appropriate for the BB&S Treated Lumber site. The public will have a minimum of 30 days for submission of written comments on the ROD. A brief summary of responses to the comments submitted will be prepared and mailed using the contact list.

**4.1 COMMONLY USED CITIZEN PARTICIPATION TERMS**

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***Citizen Participation:*** A process to inform and involve the interested/affected public in the decision-making process during identification, assessment and remediation of hazardous waste sites. This process helps to assure that the best decisions are made from environmental, human health, economic, social and political perspectives.

***Citizen Participation Plan:*** A document that describes the site-specific citizen participation activities that will take place to complement the "Technical" (remedial) activities. It also provides site background and rationale for the selected citizen participation program for the site. A plan may be updated or altered as public interest or the Technical aspects of the program change.

***Citizen Participation Specialist:*** A Department staff member within the Division of Hazardous Waste Remediation who provides guidance, evaluation and assistance to help the Project Manager carry out his/her site-specific Citizen Participation program.

***Contact List:*** Names, addresses and/or telephone numbers of individuals, groups, organizations and media interested and/or affected by a particular hazardous waste site. Compiled and updated by the Department. Interest in the site, stage of remediation and other factors guide how comprehensive the list becomes. Used to assist the Department to inform and involve the interested/affected public.

***Document Repository:*** Typically a regional NYSDEC office a public building, such as a library, near a particular site, at which documents related to remedial and citizen participation activities at the site are available for public review. Environmental Management Councils (EMCs), Conservation Advisory Committees (CACs) as well as active local groups often can serve as supplemental document repositories.

***Information Sheet:*** A written discussion of a site's remedial process, or some part of site, prepared by the Department for the public in easily understandable language. May be prepared for the "general" public or a particular segment. Uses may include, for example: discussion of an element of the remedial program, opportunities for public involvement, availability of a report or other information, or announcement of a public meeting. May be mailed to all or part of the interested public, distributed at meetings and availability sessions or sent on an "as requested" basis.

***Project Manager:*** A Department staff member within the Division of Hazardous Waste Remediation (usually an engineer, geologist or hydrogeologist) responsible for the day-to-day administration of activities, and ultimate disposition of, one or more hazardous waste

sites. The Project Manager works with the Citizen Participation staff, as well as Department fiscal and legal staff and the NYSDOH staff to accomplish site-related goals and objectives.

**Public:** The universe of individuals, groups and organizations: (a) affected (or potentially affected) by an active hazardous waste site and/or its remedial program; (b) interested in the site and/or its remediation; (c) having information about the site and its history.

**Public Meeting:** A scheduled gathering of the Department staff and the public to give and receive information, ask questions and discuss concerns. May take one of the following forms: large-group meeting called by the Department; participation by the Department at a meeting sponsored by another organization such as a town board or Department of Health; working group or workshop; public availability session.

**Public Notice:** A written or verbal informational technique for telling people about an important part of a site's remedial program coming up soon (examples: announcement that the report for the RI/FS is publicly available; a public meeting has been scheduled).

The public notice may be formal, such as a paid legal advertisement in a newspaper circulated widely in the geographic area of the site.

Public notices may also be more informal (examples: paid newspaper advertisement; telephone calls to key citizen leaders; targeted mailings).

**Responsiveness Summary:** A formal or informal written or verbal summary and response by the Department to public questions and comments. Prepared during or after important elements in a site's remedial program, the responsiveness summary may list and respond to each question, or summarize and respond to questions in categories.

#### **4.2 SIGNIFICANT ELEMENTS AND TERMS OF THE REMEDIAL PROGRAM**

**NOTE:** The first eight definitions represent major elements of the remedial process. They are presented in the order in which they occur, rather than in alphabetical order, to provide a context to aid in their definition.

**Site Placed on Registry of Inactive Hazardous Waste Sites:** Each inactive site known or suspected of containing hazardous waste must be included in the Registry. Therefore, all sites which state or county environmental or public health agencies identify as known or suspected to have received hazardous waste should be listed in the Registry as they are identified. Whenever possible, the Department carries out an initial evaluation at the site before listing.

***Preliminary Site Assessment (PSA):*** The first investigation of a site where hazardous waste has or may have been disposed or illegally or improperly is known as a PSA. The goal of the PSA is to determine whether a site meets the state's definition of a hazardous waste site by confirming the presence of hazardous waste and determining if the site poses a significant threat to public health or the environment. The PSA is a three-step process that includes:

- **Records Search:** a thorough background review and record check into past use and disposal activity at the site.
- **Sampling/Survey:** sampling of exposed wastes, drums, surrounding soil and surface water, and performing geophysical and soil gas surveys, and
- **Groundwater monitoring:** installing monitoring wells and analyzing water samples to check for subsurface contamination.

***Remedial Investigation (RI):*** A process to determine the nature and extent of contamination by collecting data and analyzing the site. It includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessary for, and proposed extent of, a remedial program for the site.

***Feasibility Study (FS):*** A process for developing, evaluating and selecting remedial actions, using data gathered during the remedial investigation to: define the objectives of the remedial program for the site and broadly develop remedial action alternatives; perform an initial screening of these alternatives; and perform a detailed analysis of a limited number of alternative which remain after the initial screening stage.

***Remedial Design:*** Once a remedial action has been selected, Technical drawings and specifications for remedial construction at a site are developed, as specified in the final RI/FS report. Design documents are used to bid and construct the chosen remedial actions. Remedial design is prepared by consulting engineers with experience in inactive hazardous waste disposal site remedial actions.

***Construction:*** NYSDEC or a responsible party who has entered into a consent order with the NYSDEC selects contractors and supervises construction work to carry out the designed remedial alternative. Construction may be as straightforward as excavation of contaminated soil with disposal at a permitted hazardous waste facility. On the other hand, it may involve drum sampling, and identification, complete encapsulation, leachate collection, storage and treatment, groundwater management, or other technologies. Construction costs may vary from several thousand dollars, depending on the size of the site, the soil, groundwater and other conditions, and the nature of the wastes.

***Monitoring/Maintenance:*** Denotes post-closure activities to insure continued effectiveness of the remedial actions. Typical monitoring/maintenance activities include quarterly inspection by an engineering technician; measurement of level water in monitoring well; or

collection of groundwater and surface water samples and analysis for factors showing the condition of water, presence of toxic substances, or other indicators of possible pollution from the site. Monitoring/maintenance may be required indefinitely at many sites.

**Consent Order:** A legal and enforceable negotiated agreement between the Department and responsible parties where responsible parties agree to undertake investigation and cleanup or pay for the cost of investigation and cleanup work at a site. The order includes a description of the remedial actions to be undertaken at the site and a schedule for implementation.

**Contract:** A legal document signed by a contractor and the Department or the responsible party to carry out specific site remediation activities.

**Contractor:** A person or firm hired to furnish materials or perform services, especially in construction projects.

**Delisting:** Removal of a site from the state Registry based on a study which shows the site does not contain hazardous wastes.

**Potentially Responsible Party (PRP) Lead Site:** A hazardous waste site at which those legally liable for the site have accepted responsibility for investigating problems at the site, and for developing and implementing the site's remedial program. PRPs include: those who owned the site during the time wastes were placed, current owners, past and present operators of the site, and those who generated the wastes placed at the site. Remedial programs developed and implemented by PRPs generally result from an enforcement action taken by the State and the costs of the remedial program are generally borne by the PRP.

**Responsible Parties:** Individuals, companies (e.g., site owners, operators, transporters or generators of hazardous waste) responsible for or contributing to the contamination problems at a hazardous waste site. PRP is a potentially responsible party.

**Site Classification:** The Department assigns sites to classifications established by state law, as follows:

**Classification 1:**

A site causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment - immediate action required.

**Classification 2:**

A site posing a significant threat to the public health or environmental - action required.

***Classification 2a:***

A temporary classification for a site known or suspected to contain hazardous waste. Most likely the site will require a Phase I and Phase II investigation to obtain more information. Based on the results, the site then would be reclassified or removed from the State Registry if found not to contain hazardous wastes.

***Classification 3:***

A site which has hazardous waste confirmed, but not a significant threat to the public health or environment - action may be deferred.

***Classification 4:***

A site which has been properly closed - requires continued management.

***Classification 5:***

A site which has been properly closed, with no evidence of present or potential adverse impact - no further action required.

***State-Lead Site:*** A hazardous waste site at which the Department has responsibility for investigating problems at the site and for developing and implementing the site's remedial program. The Department uses money available from the State Superfund and the Environmental Quality Bond Act of 1986 to pay for these activities. The Department has direct control and responsibility for the remedial program.



**APPENDIX F**  
**SCHEDULE 2.11 BACKUP**

TABLE 1

## COMPARISON OF DRILLING SERVICES COST ESTIMATES

Item	Estimated Quantity	SJB		ADI		ADT		Buffalo Drilling	
		Unit Rate		Unit Rate		Unit Rate		Unit Rate	
Mob/Demob	Lump Sum	Lump Sum	\$500	Lump Sum	\$800	Lump Sum	\$475	Lump Sum	\$2,000
Construction of Decon Pad	Lump Sum	Lump Sum	\$500	Included in Mob cost		Lump Sum		Lump Sum	\$400
Per Diem	16 nights	Included in cost		Included in cost		Lump Sum		\$100 /night	\$1,600
Soil Borings									
4 1/4 inch ID Auger (6 at 40 feet each)	240 ft	\$10 /ft	\$2,400	\$16 /ft	\$3,840	\$14 /ft	\$3,360	\$9 /ft	\$2,160
2" split spoons	54 ea.	\$6 ea.	\$324	included in \$16/ft cost		\$20 ea.	\$1,080	\$5 ea	\$270
Grouting of borehole	240 ft	\$6 /ft	\$1,440	\$3 /ft	\$720	\$6 /ft	\$1,440	\$7.50 /ft	\$1,800
Hydropunch Sampling									
4 1/4 inch ID Auger (depth to 50 feet)	300 ft	\$10 /ft	\$3,000	\$16 /ft	\$4,800	\$14 /ft	\$4,200	\$9 /ft	\$2,700
4 1/4 inch ID Auger (depth from 50 feet to 100 feet)	180 ft	\$13 ft	\$2,340	\$19 /ft	\$3,420	\$14 /ft	\$2,520	\$15 /ft	\$2,700
Hydropunch Sample (3 per hole)	18 ea.	\$130 ea	\$2,340	\$150 ea	\$2,700	\$200 ea	\$3,600	\$150 ea	\$2,700
Grouting of borehole	480 ft	\$6 /ft	\$2,880	\$3 /ft	\$1,440	\$6 /ft	\$2,880	\$7.50 /ft	\$3,600
Miscellaneous									
Drums	25 ea	\$35 ea	\$875	\$45 ea	\$1,125	\$45 ea	\$1,125	\$55 ea	\$1,375
Plywood/plastic working surface	9 ea	Included in cost		\$125 ea	\$1,125	\$150 ea	\$1,350	\$150 /ea	\$1,350
Health and Safety Plan		Included in cost		Included in cost			\$1,000	Included in cost	
Decon	10 hrs	\$130 /hr	\$1,300	\$140 /hr	\$1,400	\$130 /hr	\$1,300	\$100 /hr	\$1,000
Drum Handling	3 hrs	\$140 /hr	\$420	\$140 /hr	\$420	\$130 /hr	\$390	\$100 /hr	\$300
Standby time	3 hrs	\$130 /hr	\$390	\$140 /hr	\$420	\$110 /hr	\$330	\$100 /person-day	\$300
Personnel Supplies	12 person-days	Included in cost		Included in cost				\$15 day	\$180
Well Rehabilitation									
Removal of Existing Protective Casing	22 ea	\$130 /ea	\$2,860	\$200 /ea	\$4,400	included in installation		\$75 /ea	\$1,650
Installation of Protective Casing and Concrete Apron	22 ea	\$150 /ea	\$3,300	included in removal		\$250 /ea	\$5,500	\$175 /ea	\$3,850
New Locking Cheme Plug and lock	22 ea	included in installation		\$20 /ea	\$440	\$51 /ea	\$1,122	included in installation	
Well Development (assuming 1 hour per well [22 wells])	22 hrs	\$130 /hr	\$2,860	\$140 /hr	\$3,080	\$160 /hr	\$3,520	\$125 /hr	\$2,750
<b>TOTAL</b>			\$27,729		\$30,130		\$35,192		\$32,685

November 2, 1995

Ms. Judy Baye  
American Auger & Ditching Co., Inc.  
Route 23  
Box 147L  
Constantia, NY 13044

Re: Request for Proposal (RFP)  
BB&S Site Remedial Investigation/Feasibility Study  
Drilling Services

Dear Ms. Baye:

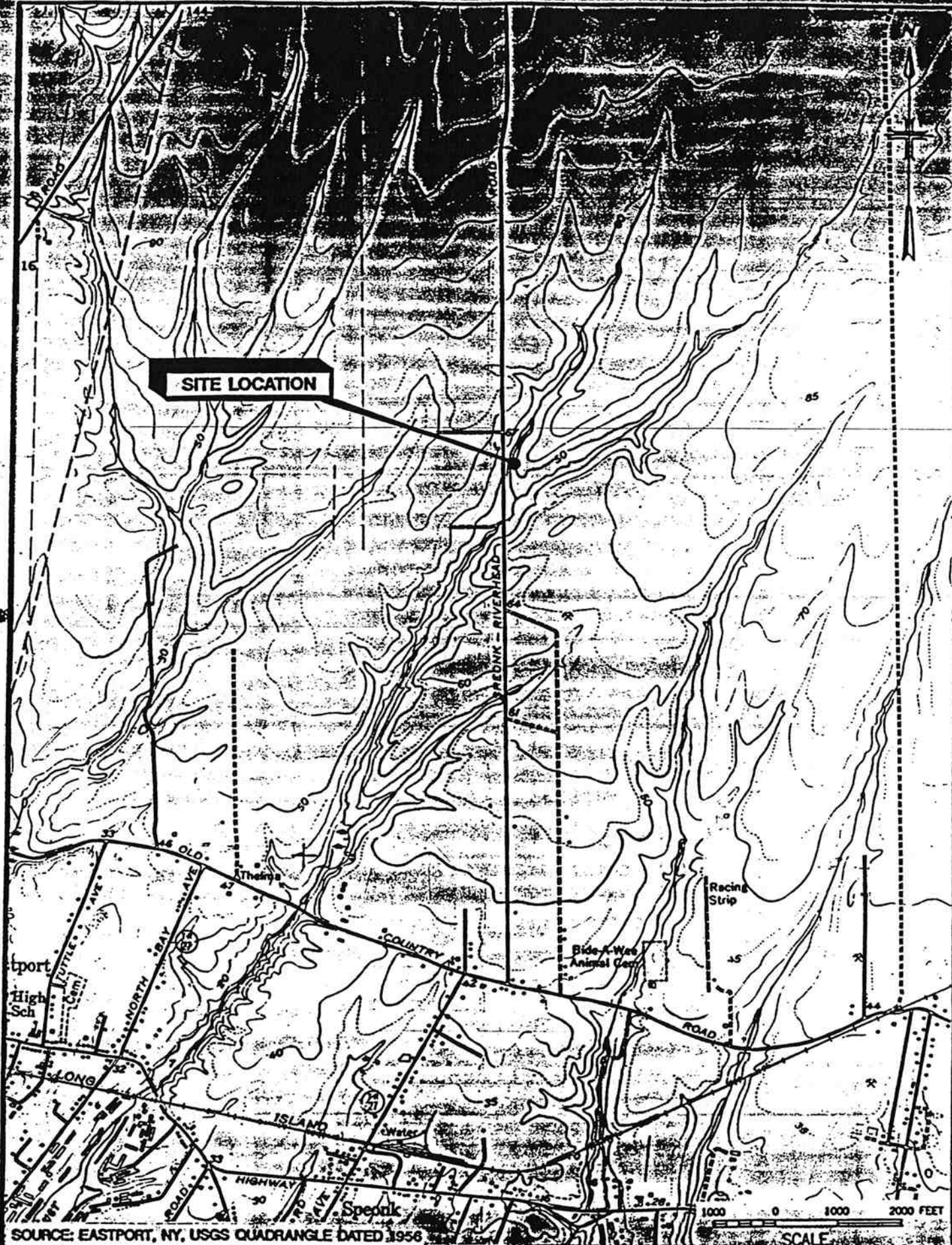
Malcolm Pirnie, Inc. has been retained by the New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, to conduct a Remedial Investigation/Feasibility Study at the BB&S Site located in Speonke, Long Island, New York. This work would be performed within the requirements of our existing agreement with your firm to provide services for NYSDEC Standby contract projects. This RFP has been prepared for the purpose of soliciting proposals for drilling services at the site. Field work is tentatively scheduled to begin January 1996. Our evaluation of your proposal will be based on your responsiveness to the outlined Scope of Work and your cost quotation.

#### **SITE DESCRIPTION:**

The BB&S site is located in the Town of Speonke, Long Island, New York (Figure 1). A subsurface investigative program involving borings and the advancement of HydroPunch Probes is required for the completion of the remedial investigation. The drilling program is tentatively scheduled to begin in the Spring of 1996. Your proposal should be responsive to the discussion of the site conditions and requested services presented in the following paragraphs.

The BB&S site has been characterized by the NYSDEC as an inactive hazardous waste site that poses a potential threat to both public health and the environment. This 10 acre site is listed in the New York State Register of Inactive Hazardous Waste Sites (Site No. 152123). The site is an active wood treatment facility that uses a solution of chromate copper arsenate (CCA) as a wood preservative. Discharges of the CCA to the ground have contaminated the groundwater in excess of drinking water standards.

The site is underlain by fine to coarse grained sand and gravel with quartz pebbles from grade. These porous and permeable sediments are Pleistocene Age glacial outwash deposits of the Upper Glacial Aquifer. The aquifer at this location is approximately 100-150 feet thick and is underlain by Gardiners clay (approximately 50-100 feet thick) and the Cretaceous Age Magothy Aquifer (approximately 1,000+ feet thick).



**MALCOLM  
PIRNIE**

**BB & S TREATED LUMBER  
SPEONK, NEW YORK  
SITE LOCATION MAP**

**MALCOLM PIRNIE, INC.**

**0266-323-1001**

**FIGURE 1**

**SCOPE OF WORK:**

- Collect soils data from borings advanced through the unsaturated zone adjacent to the suspected source (concrete dripped area).
- Advance HydroPunch Probes to collect water chemistry data.

In preparing your proposal/price quotation, please consider the following:

**Program Description** - Some downtime is anticipated due to the need to coordinate the drilling program with the 24-hour turn around to be provided by the analytical lab. Malcolm Pirmie will coordinate site activities to minimize subcontractor downtime to the greatest extent possible. We currently anticipate undertaking the following program:

1. **Soil Borings** - A total of six soil borings will be drilled and 2-inch diameter split spoons will be collected every five feet from the ground surface to the water table (anticipated depth of 40 feet). It is anticipated that 4 days will be required for completion of borings.
2. **HydroPunch Probes** - Three HydroPunch Probes will be advanced at the site. Initially, each boring will be advanced to the water table (40 feet). A HydroPunch Probe will be pushed/driven 5 feet below the lead auger. The HydroPunch casing will be retracted 5 feet, exposing the screen, and a groundwater sample will be collected. The groundwater sample will be submitted to a laboratory for analysis with a 24 hour turnaround for results. Based upon the results, the procedure may be repeated every 20 feet until: (A) groundwater contamination is no longer detected, (B) the Gardiners Clay unit is encountered, or (C) it is no longer possible to advance hollow stem augers. It is anticipated that 9 days will be required for Hydro Punch sampling.
3. **Prevention of Cross-Contamination** - The following precautions will be taken during this investigation to isolate surface soil from downhole contaminants:
  - Place a plastic sheet (approximately 15' x 25') of suitable thickness (10 to 15 mil) and plywood on the ground surface work area. Advance boreholes and HydroPunch Probes through an opening in the plastic and plywood.
  - Place all drilling tools on plywood during drilling operations.
  - Collect all drill cuttings and place in DOT-approved 55-gallon drums.
  - Drill cuttings and used personal safety equipment will be segregated into separate drums.

Ms. Judy Baye  
American Auger & Ditching Co., Inc.

November 2, 1995  
Page 3

- All drilling equipment (augers, drill rods, bits, etc.) will be cleaned between borehole locations using a steam cleaner and wire brush to remove all visible soil/fill adhering to the tools.
- The drilling contractor will be responsible for collecting drilling water, if applicable, as it is generated.
- Decontamination water will be collected as it is generated. The decontamination of large pieces of equipment will take place on a decontamination pad constructed by the drilling subcontractor that is designed to collect used water.

## **HEALTH AND SAFETY**

A Health/Safety Plan will be required to be developed by the selected drilling subcontractor to protect the health and safety of their staff. Preparation of the plan should be factored into your cost estimate. You should assume that all work will be performed using Level D protection with Level C backup if required. Please state any additional costs which would be charged if Level C protection is required. You will be responsible for your own equipment requirements. A copy of the Malcolm Pirnie Health and Safety Plan will be provided to you for your information if your quotation is accepted.

Your staff should be experienced with working at hazardous waste sites and have had applicable OSHA training. If selected, you will be required to submit for each member of your field crew a certificate demonstrating applicable OSHA training and a doctor's statement relative to their ability to work at a hazardous waste site.

The principle contaminants known at this time are copper, chromium and arsenic.

## **SUBMITTALS**

Proposals shall include the following, at a minimum:

- A brief description of the undertaking (i.e., proposed drilling procedures, types of equipment, and crew size).
- Unit Price Quotation. Your unit price for drilling and well installation should be all inclusive. The unit price should include moving to the borehole locations, setup of drilling rig, and an exclusion zone at each location, the setup and provision of materials to control the release of contaminated drill cuttings and fluids, and the

Ms. Judy Baye  
American Auger & Ditching Co., Inc.

November 2, 1995  
Page 4

provision for sample jars. Piezometer installation prices should include labor and materials for installation of permanent casing, bentonite, grout, and keyed-alike lockable plugs.

Please submit your proposal by 4:00 pm, November 9, 1995.

Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, New York 14127  
Attention: Judith Vangalio

We look forward to receiving your proposal/cost quotation. If you have any questions, please contact me at (716) 828-1300.

Very truly yours,

MALCOLM PIRNIE, INC.



Anne Marie McManus, P.E.  
Project Manager

c: Sally W. Dewes - NYSDEC  
File: CC

0266-323-100  
RML/323RFQDR

November 9, 1995

MALCOLM PIRNIE, INC.  
ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

Mr. Joseph L. Genovese  
SJB Contact Drilling and Testing  
1951-1 Hamburg Turnpike  
Buffalo, NY 14218

Re: Addendum to Request for Proposal (RFP)  
BB&S Site Remedial Investigation/Feasibility Study  
Drilling Services

Dear Mr. Genovese:

Malcolm Pirnie, Inc. submitted a scope of work to your firm in a letter dated November 2, 1995. After discussions with the New York State Department of Environmental Conservation, the scope of work has been modified. Therefore, we are requesting an addendum to your cost estimate be prepared for the addition to the scope or work outlined below.

#### SCOPE OF WORK:

The BB&S site has 22 existing monitoring wells located throughout the site. Malcolm Pirnie has located all these wells. The surficial construction of these wells will need to be inspected. Rehabilitation efforts, such as; repair for the concrete apron, repair or replacement of the protective steel casing, or replacement of the lock and/or locking cap, will need to be completed. For costing purposes, assume that all 22 existing wells will need rehabilitation.

Upon completion of the rehabilitation effort, each well which can be rehabilitated, will be redeveloped using surge and air lift procedures. Each well will need to be developed for 1 hour or until the turbidity of the groundwater discharge is 50 NTU, whichever occurs first. All water generated during development will be discharged on site.

#### SUBMITTALS

Please submit your revised costs by 4:00 pm, November 15, 1995.

Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, New York 14127  
Attention: Anne Marie McManus

We look forward to receiving your revised proposal/cost quotation. If you have any questions, please contact me at (716) 828-1300 or Chuck Trione at (201)529-4700.

Very truly yours,

MALCOLM PIRNIE, INC.

A handwritten signature in cursive script that reads 'Anne Marie McManus for'.

Anne Marie McManus, P.E.  
Project Manager

c: Sally W. Dewes - NYSDEC  
File: C-1

0266-323-100  
ACM11095.L7

S 3515 ABBOTT ROAD

P O BOX 1938

BUFFALO, NY 14219 0138

716 828-1300

FAX 716-828-0431



# ADVANCED DRILLING, INC.

November 9, 1995

Malcolm Pirnie, Inc.  
Attention: Anne Marie McManus  
S-3515 Abbott Road  
Orchard Park, New York 14127

Reference: ***BB&S Site Remedial Investigation  
Speonke, Long Island, New York***

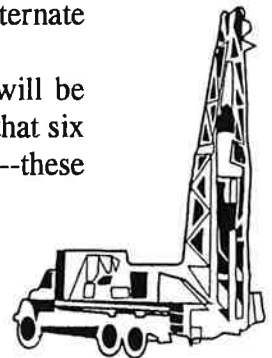
Dear Ms. McManus:

As per your request, we are pleased to present this proposal for the referenced project.

As per your specifications of November 2 and Addendum of November 9, 1995, we have attached a cost proposal for your review. The cost proposal includes unit rates for each of the specific items to be performed with the estimated budgets for each. The final invoice would reflect these unit rates together with the actual field quantities completed.

We have made the following assumptions:

- all drilling locations are truck accessible
- borings will be grouted upon completion
- standby time accrued waiting for laboratory analysis will be less than one hour per hole
- we have not considered leaving augers in the ground and moving to another hole while waiting for laboratory analysis, however this would be possible if we utilized two strings of augers and providing that not more than 50-feet of augers were left in the hole at any one time
- we have assumed that a HydroPunch sample would be taken at 40' and one at 60' in each hole, we have not estimated beyond those depths, should samples be needed below these depths, please use the alternate pricing
- for well rehabilitation we have assumed that eleven flushmounts will be total reconstruction, that five would need just plugs and locks and that six would need just pads, your information might be more specific--these numbers are just guesses



-2-

Malcolm Pirnie, Inc.  
BB&S Site

November 9, 1995

If awarded this project, *Advanced Drilling* would utilize a Failing SS-15 or equivalent to perform this work. We would attempt to drill all of these holes with 4-1/4" hollow stem augers, however if depths become too great or "running sands" start to hamper progress, we would switch to mud rotary drilling techniques. We would have a three man crew on site during all drilling operations.

We trust that this proposal meets with your approval and we look forward to working with you on this project.

Very truly yours,

**ADVANCED DRILLING, INC.**

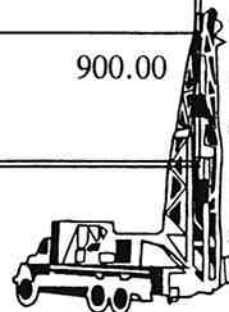


Vicky L. Alberalla  
President



**COST PROPOSAL  
MALCOLM PIRNIE, INC.  
BB&S SITE  
SPEONKE, NEW YORK  
NOVEMBER 9, 1995**

Item No.	Description	Unit Rate	Estimated Quantity	Estimated Total
1	Mobilization and demobilization, assuming truck accessibility	\$800.00/lr.	1	\$800.00
2	<b>SOIL BORINGS</b>			
	Drilling and sampling with 4-1/4" hollow stem augers (6 borings to 40')	16.00/ft.	240.0'	3,840.00
	Moving from hole to hole, including plywood and plastic sheeting	125.00/ea.	6	750.00
	Grouting of borings upon completion	3.00/ft.	240.0'	720.00
	Drums	45.00/ea.	15	675.00
	Standby time for steam cleaning, waiting for lab results, drum handling, site cleanup, etc.	140.00/hr.	6	840.00
3	<b>HYDROPUNCH PROBES</b>			
	Drilling and sampling with 4-1/4" hollow stem augers (3 probes @60')-assumes drilling 0'-60'	16.00/ft.	180.0'	2,880.00
	HydroPunch Samples (assuming 2 per hole)-assumed samples taken not deeper than 60'	150.00/ea.	6	900.00



	Drilling and sampling with 4-1/4" hollow stem augers - 60' to 100'	19.00/ft.	0	0.00
	HydroPunch Samples - 60' to 100'	200.00/ea.	0	0.00
	Moving from hole to hole, including plywood and plastic sheeting	125.00/ea.	3	375.00
	Grouting of borings upon completion	3.00/ft.	180.0'	540.00
	Drums	45.00/ea.	10	450.00
	Standby time for steam cleaning, waiting for lab results, drum handling, site cleanup, etc.	140.00/hr.	3	420.00
4	<b>WELL REHABILITATION</b>			
	Repair of concrete pad, assuming no other work performed	150.00/ea.	6	900.00
	New locking Cherne plug and lock	20.00/ea.	5	100.00
	Removal of existing stickup protective casing and replacement of same	200.00/ea.	0	0.00
	Removal of existing flushmount protective casing and replacement of same	325.00/ea.	11	3,575.00
	Well development (assuming one hour per well)	140.00/hr.	22	3,080.00
<b>TOTAL ESTIMATED COST</b>				<b>\$20,845.00</b>



# ADVANCED DRILLING, INC.

November 14, 1995

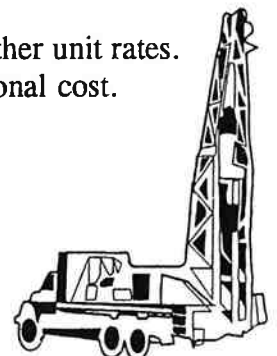
Malcolm Pirnie, Inc.  
Attention: Judith Vangalio  
S-3515 Abbott Road  
Buffalo, New York 14219-0138

Reference: ***BB&S Site Remedial Investigation  
Speonke, Long Island, New York***

Dear Ms. Vangalio:

As per your request of November 13, 1995, we offer the following responses to your questions:

- *Have per diem costs for our crew been considered?*  
Our per diem costs have been considered and are accounted for in other unit prices, there will be no additional charges for per diem.
- *Have costs for a temporary decontamination pad been considered?*  
Costs for a temporary decon pad are included in our mobilization and demobilization.
- *What are the costs for split spoon sampling?*  
Costs for split spoon sampling is included in our drilling footage rates - our proposal reads "drilling and sampling with...".
- *Has Advanced Drilling considered the cost for preparing a Health and Safety Plan?*  
Yes. We are prepared to provide a Health and Safety Plan as per the requirement at no additional cost.
- *What is the cost for personal protective clothing and equipment?*  
The costs for personal protective clothing and equipment are included in other unit rates. Our crew will be prepared with tyveks, booties, gloves, etc. at no additional cost.



-2-

Malcolm Pirnie, Inc.  
BB&S Site Remedial Investigation  
November 14, 1995

We trust that this information meets with your approval and we look forward to working with you on this project.

Very truly yours,

**ADVANCED DRILLING, INC.**



Vicky L. Alberalla  
President





**Aquifer Drilling & Testing, Inc.**

51-41 59th Place • Woodside • New York 11377 • Phone: (718) 899-0489 • Fax: (718) 899-0490

Ms. Anne Marie McManus  
Malcolm Pirnie, Inc.  
S. 3515 Abbott Road  
P.O. Box 1938  
Buffalo, New York 14219

November 7, 1995

Re: B.B. & S. Site  
Speonk, N.Y.  
**Proposal # 95 - 740**

Dear Ms. McManus:

Aquifer Drilling & Testing ( ADT ) is pleased to present this quotation for drilling services at the referenced site:

**Program Description:**

A total of six soil borings will be drilled and 2-inch spoon samples will be collected every five feet to a depth of approximately 40 feet. Three hydropunch probes will be advanced at the site, each to approximately 40 feet. Groundwater samples will be collected approximately each 20' to about 150 feet.

**Soil Borings:**

1)	Mobilization/ demobilization:	L.S.	\$ 475.00
2)	Auger in soils with 3 1/4" I.D. HSA Six ( 6 ) borings, 40' deep. Estimated total of 240 feet @ \$14.00.		\$3,360.00
3)	Split spoon sampling each 5'. Estimated total of 48 @ \$20.00 each		\$ 960.00
4)	Decontamination, staging cuttings and drums. Estimated total of three ( 3 ) hours @ \$130 per hour.		\$ 390.00
5)	Drums, estimated total of nine (9) @ \$45.00		\$ 405.00
6)	Plywood/plastic working surface. Estimated total of six ( 6 ) @ \$150.00		<u>\$ 900.00</u>

Estimated Cost: \$6,490.00

## **Aquifer Drilling & Testing, Inc.**

### **Hydropunch samples:**

- |     |  |                  |
|-----|--|------------------|
| 7)  | Augering in soils with 3 1/4" I.D. HSA,<br>Three ( 3 ) sample holes, 150 feet deep.<br>Estimated total of 450 feet @ \$14.00 | \$6,350.00       |
| 8)  | Hydropunch samples at 20 foot intervals<br>between 40 feet and 150 feet.<br>Estimated total of 17 samples @ \$200.00 each.   | \$3,400.00       |
| 9)  | Decontamination, staging cuttings and drums.<br>Estimated total of six ( 6 ) hours @ \$130.00                                | \$ 780.00        |
| 10) | Drums, estimated total of sixteen ( 16 ) @ \$45.00   | \$ 720.00        |
| 11) | Plywood/plastic working surface.<br>Estimated total of three ( 3 ) @ \$150.00  | <u>\$ 450.00</u> |

Estimated Cost: \$11,650.00

### **General Conditions:**

- a) Standby per hour \$110.00
- b) Written, site specific Health & Safety plan \$1,000.00
- c) Level "C" multiplier 1.2.
- d) Cement/bentonite grouting boreholes \$6.00 per foot.

ADT's estimated cost for this project is \$18,140.00. This estimate is based upon truck mounted drill rig access, level "D" drilling conditions, on-site disposal of drill cuttings and development water, and prior utility clearance.

We anticipate twelve to fourteen ( 12 - 14 ) day to complete this project. Given your notice to proceed, we could begin in January 1966.

Thank you for the opportunity to work with you on this project.

Yours Very truly;



William E. Tibbe  
Manager, Business Development



## **SUBMITTAL**

- **Proposed Drilling Procedure:**

The method to be used is hollow stem augering. Two inch split spoons will be employed. The methods and requirements described in the R.F.P. will be followed. Standard QED hydropunch equipment will be used.

- **Type of Equipment:**

The drilling rig will be either a Mobil B- 61 or a C.M.E. or a Failing F-10.

- **Crew Size:**

One driller and one helper will be assigned to the rig and job.

\* Our proposal does not include piezometer installation due to the absence of numbers, design and other details.



**Aquifer Drilling & Testing, Inc.**

51-41 59th Place • Woodside • New York 11377 • Phone: (718) 899-0489 • Fax: (718) 899-0490

Ms. Anne Marie McManus  
Malcolm Pirnie, Inc.  
S. 3515 Abbott Road  
P.O. Box 1938  
Buffalo, New York 14219

November 10, 1995

Re: B.B. & S. Site  
Speonk, N.Y.  
Proposal # 95 - 740 A  
Revised November 10, 1995

Dear Ms. McManus:

Aquifer Drilling & Testing ( ADT ) is pleased to present this quotation for drilling services at the referenced site:

**I. Program Description:**

A total of six soil borings will be drilled and 2-inch spoon samples will be collected every five feet to a depth of approximately 40 feet. Three hydropunch probes will be advanced at the site, each to approximately 40 feet. Groundwater samples will be collected approximately each 20 feet to about 150 feet.

**A. Soil Borings:**

1)	Mobilization/ demobilization:	L.S.	\$ 475.00
2)	Auger in soils with 3 1/4" I.D. HSA Six ( 6 ) borings, 40' deep. Estimated total of 240 feet @ \$14.00.		\$3,360.00
3)	Split spoon sampling each 5'. Estimated total of 48 @ \$20.00 each		\$ 960.00
4)	Decontamination, staging cuttings and drums. Estimated total of three ( 3 ) hours @ \$130 per hour.		\$ 390.00
5)	Drums, estimated total of nine (9) @ \$45.00		\$ 405.00
6)	Plywood/plastic working surface. Estimated total of six ( 6 ) @ \$150.00		\$ 900.00

Estimated Cost: \$6,490.00

## **Aquifer Drilling & Testing, Inc.**

### **B. *Hydropunch samples:***

- |     |  |            |
|-----|--|------------|
| 7)  | Augering in soils with 3 1/4" I.D. HSA,<br>Three ( 3 ) sample holes, 150 feet deep.<br>Estimated total of 450 feet @ \$14.00 | \$6,350.00 |
| 8)  | Hydropunch samples at 20 foot intervals<br>between 40 feet and 150 feet.<br>Estimated total of 17 samples @ \$200.00 each.   | \$3,400.00 |
| 9)  | Decontamination, staging cuttings and drums.<br>Estimated total of six ( 6 ) hours @ \$130.00                                | \$ 780.00  |
| 10) | Drums, estimated total of sixteen ( 16 ) @ \$45.00   | \$ 720.00  |
| 11) | Plywood/plastic working surface.<br>Estimated total of three ( 3 ) @ \$150.00  | \$ 450.00  |

Estimated Cost: \$11,650.00

### **Addendum November 9, 1995**

## **II. Program Description:**

A total of 22 existing monitoring wells are to be rehabilitated. The work may entail repair to the concrete apron; repair or replacement of the protective steel casing; replacement of the lock; replacement of the locking cap; repair to the well casing; cleaning out the well casing and screen; redeveloping the wells.

### **C. *Well Repairs:***

#### *Unit Prices:*

- |    |  |           |
|----|--|-----------|
| a) | Replace concrete apron.                                      | \$ 50.00  |
| b) | Replace protective steel casing and cap, including concrete. | \$ 250.00 |
| c) | Replace protective pipe 5' long.                             | \$ 150.00 |
| d) | Replace locking cap.   | \$ 50.00  |
| e) | Replace inner plug   | \$ 41.00  |
| f) | Replace lock   | \$ 10.00  |
| g) | Replace flush mount manhole including concrete.              | \$ 275.00 |
| h) | Replace top 5' of inner well casing                          | \$ 175.00 |
| i) | Clean out well with drilling rig, per hour.                  | \$ 160.00 |
| j) | Redevelop well using compressed air and surging, per hour    | \$ 160.00 |

## Aquifer Drilling & Testing, Inc.

### *Estimated costs:*

For costing purposes ADT assumes that each well will require rehabilitation and one hour of redevelopment.

- |     |  |                   |
|-----|--|-------------------|
| 12) | Repair twenty two ( 22 ) wells @ \$250.00  | \$5,500.00        |
| 13) | Redevelop twenty two ( 22 ) wells using compressed air and surging, one ( 1 ) hour each @ \$160.00 per hour. | <u>\$3,520.00</u> |

Estimated Cost: \$9,020.00

### **General Conditions:**

- a) Standby per hour \$110.00
- b) Written, site specific Health & Safety plan \$1,000.00
- c) Level "C" multiplier 1.2.
- d) Cement/bentonite grouting boreholes \$6.00 per foot.
- e) Well repairs are non-specific and will be billed at unit prices.

ADT's estimated cost for this project is \$27,160.00. This estimate is based upon truck mounted drill rig access, level "D" drilling conditions, on-site disposal of drill cuttings and development water, and prior utility clearance.

We anticipate fifteen to twenty ( 15 - 20 ) days to complete this project. Given your notice to proceed, we could begin in January 1996.

Thank you for the opportunity to work with you on this project.

Yours Very truly;



William E. Tibbe  
Manager, Business Development

## **SUBMITTAL**

- ***Proposed Drilling Procedure:***

The method to be used is hollow stem augering. Two inch split spoons will be employed. The methods and requirements described in the R.F.P. will be followed. Standard QED Hydro Punch equipment will be used.

- ***Type of Equipment:***

The drilling rig will be either a Mobil B- 61 or a C.M.E. or a Failing F-10.

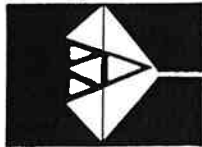
- ***Crew Size:***

One driller and one helper will be assigned to the rig and job.

- ***Proposed Well Repair Procedures:***

The actual well repair requirements will be determined in the field by examining each well and ascertaining it's condition. Repairs will then be implemented in accordance with Malcolm Pirnie, Inc's., concurrence and instructions. The materials or remedies used will be invoiced in accordance with the unit price schedule.

# BUFFALO DRILLING COMPANY



INC.

10440 MAIN STREET  
CLARENCE, NEW YORK  
14031  
(716) 759-7821  
FAX (716) 759-7823

November 10, 1995

BDC Job: 95-311

Malcolm Pirnie, Inc.  
S. 3515 Abbott Road  
Buffalo, New York 14127

ATTN : Ms. Anne Marie McManus, P.E.

RE : *Test Drilling Services at BB&S  
Site, Speonke, Long Island, NY*

Ladies & Gentlemen:

**Buffalo Drilling Company, Inc.** is pleased to submit this proposal for exploratory drilling services at the above referenced landfill site. The estimated scope of services and costs to complete the required efforts are presented below for consideration.

## SCOPE OF SERVICES AND COSTS

<u>ITEM</u>	<u>COST</u>
1) Mobilization of CME 75 drill rig and tools.	L.S. \$ 2,000.00
2) Motel and per diem expenses for two man crew. \$100.00/night x 12 nights	\$ 1,200.00
3) Overburden drilling with hollow-stem augers and retrieval of split-spoon samples.	
a) Shallow test bores from 0 to 50 feet: (Level D) \$ 9.00/foot x 40 feet/bore x 6 bores (Level C) \$11.25/foot	\$ 2,160.00
b) Retrieval of split-spoon samples: (Level D) \$5.00/sample x 54 samples (Level C) \$7.50/sample	\$ 270.00

Malcolm Pirnie, Inc.  
Scope of Services and Costs  
**BB&S Site**

Page 2 of 3

<u>ITEM</u>	<u>COST</u>
4) Overburden drilling with hollow-stem augers and provision to retrieve hydro-punch water samples.	
a) Drilling 0 to 50 feet (Level D): \$9.00/foot x 3 bores x 50 feet	\$ 1,350.00
b) Drilling 50 to 100 feet (Level D): \$15.00/foot x 3 bores x 50 feet	\$ 2,250.00
c) Hydro-punch samples: \$150.00/hour x 1 hour/sample x 4 samples/bore x 3/bores	\$ 1,800.00
d) Standby due to delays related to awaiting analyses of hydro-punch samples: \$100.00/hour x 4 hours/bore x 3 bores	\$ 1,200.00
5) Construction of temporary decontamination pad and provision to set-up drill sites.	
a) Decontamination pad.	L.S. \$ 400.00
b) Site set-up to include provision of plastic sheet and plywood: \$150.00/location x 9 locations	\$ 1,350.00
6) Provision of DOT 17H drums and personnel protective supplies.	
a) DOT 17H drums (provide and stage): \$55.00/drum x 25 drums	\$ 1,375.00
b) Personnel supplies for Level D: \$15.00/person/day x 26 man days	\$ 390.00

Malcolm Pirnie, Inc.  
Scope of Services and Costs  
***BB&S Site***

Page 3 of 3

<u>ITEM</u>	<u>COST</u>
7) Standby rate for equipment decontamination, awaiting decisions, safety meetings, etc.	
\$100.00/hour x 2 hours/bore x 9 bores	<u>\$ 1,800.00</u>
<b><i>TOTAL ESTIMATED COST FOR TEST DRILLING SERVICES:</i></b>	<b><i>\$17,545.00</i></b>

Thank you for the opportunity to submit this proposal. Please call at your earliest convenience, if questions should rise.

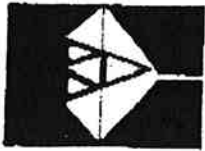
Very truly yours,  
***BUFFALO DRILLING COMPANY, INC.***



James S. Barron, P.E.  
President

JSB:pjh



**BUFFALO DRILLING COMPANY****INC.**

10440 MAIN STREET  
CLARENCE, NEW YORK  
14031  
(716) 759-7821  
FAX (716) 759-7823

November 10, 1995

BDC Job: 95-311

Malcolm Pirnie, Inc.  
S. 3515 Abbott Road  
Buffalo, New York 14127

ATTN : Ms. Anne Marie McManus, P.E.

RE : *Test Drilling Services at BB&S*  
*Site, Speonke, Long Island, NY*  
(Revised November 15, 1995)

Ladies &amp; Gentlemen:

**Buffalo Drilling Company, Inc.** is pleased to submit this proposal for exploratory drilling services at the above referenced landfill site. The estimated scope of services and costs to complete the required efforts are presented below for consideration.

**SCOPE OF SERVICES AND COSTS**

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Malcolm Pirnie, Inc.  
Scope of Services and Costs  
**BB&S Site**

Page 2 of 4

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a) Decontamination pad.	L.S. \$ 400.00
b) Site set-up to include provision of plastic sheet and plywood: \$150.00/location x 9 locations	\$ 1,350.00
6) Provision of DOT 17H drums and personnel protective supplies.	
a) DOT 17H drums (provide and stage): \$55.00/drum x 25 drums	\$ 1,375.00
b) Personnel supplies for Level D: \$15.00/person/day x 26 man days	\$ 390.00

Malcolm Pirnie, Inc.  
Scope of Services and Costs  
**BB&S Site**

Page 3 of 4

<u>ITEM</u>	<u>COST</u>
7) Standby rate for equipment decontamination, awaiting decisions, safety meetings, etc.  \$100.00/hour x 2 hours/bore x 9 bores	   \$ 1,800.00
8) Provision to repair and rehabilitate 22 existing wells.	
a) remove existing concrete apron and protective casing.  \$75.00/well x 22 wells	   \$ 1,650.00
b) repair well pipe as needed, install new four inch protective casing, construct two foot by two foot by six inch thick concrete apron, and provide two inch J-plug and lock.  \$175.00/well x 22 wells	    \$ 3,850.00
c) develop well with surging and air lifts method.  \$125.00/hour x 1 hour/well x 22 wells	   \$ 2,750.00
d) per diem and motel expenses for crew:  \$100.00/night x 4 nights	   \$ 400.00
TOTAL ESTIMATED COST TO REHABILITATE 22 EXISTING WELLS:	\$ 8,650.00
TOTAL ESTIMATED COST FOR TEST DRILLING SERVICES:	\$26,195.00

Malcolm Pirnie, Inc.  
Scope of Services and Costs  
BB&S Site

Page 4 of 4

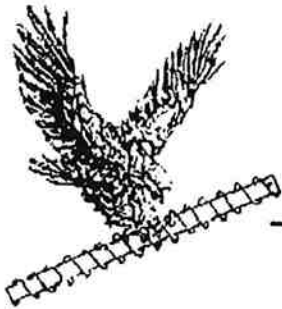
Thank you for the opportunity to submit this proposal. Please call at your earliest convenience, if questions should rise.

Very truly yours,  
**BUFFALO DRILLING COMPANY, INC.**

*James S Barron* KK.

James S. Barron, P.E.  
President

JSB:kmk



## American Auger & Ditching Co., Inc.

---

Route 23, Box 147 L • Constantia, NY 13044  
(315) 623-7496 • FAX: 623-7189

November 7, 1995

Malcolm Pirnie, Inc.  
P.O. Box 1938  
Buffalo, NY 14219

Attn: Anne Marie McManus, PE

Re: RFP Drilling Services  
BB & S Site RI/FS, Speonke, LI, NY

Dear Mrs. McManus:

We appreciate the opportunity to provide a quotation for the above referenced project.

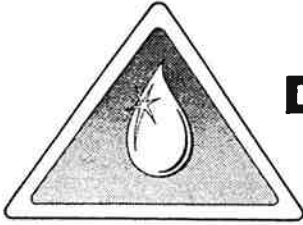
We regret, however, that we will not be bidding on this job at this time.

Please keep us in mind for future projects of this nature.

Very truly yours,

AMERICAN AUGER & DITCHING CO., INC.

Judy Baye  
President



# DELTA WELL & PUMP Co., Inc.

WATER AND ENVIRONMENTAL DRILLING

November 9, 1995  
Q713-95

Anne Marie McManus, P.E.  
Project Manager  
Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, NY 14127

Reference: Request for Proposal (RFP)  
BB&S Site Remedial Investigation/Feasibility Study  
Drilling Services

Dear Ms. McManus:

Thank you for the opportunity to submit a proposal on the referenced work.

Because of the requirement for the drilling contractor to develop a health and safety plan and provide job site monitoring, we would not be competitive on this project. Therefore, we have chosen not to submit a quotation.

We look forward to working with you on future projects.

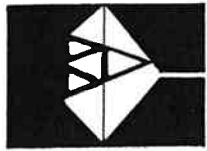
Very truly yours,

DELTA WELL & PUMP CO., INC.

Christopher M. Okon  
Project Manager

CMO/njm  
(93)

# BUFFALO DRILLING COMPANY



INC.

10440 MAIN STREET  
CLARENCE, NEW YORK  
14031  
(716) 759-7821  
FAX (716) 759-7823

November 10, 1995

BDC Job: 95-311

Malcolm Pirnie, Inc.  
S. 3515 Abbott Road  
Buffalo, New York 14127

ATTN : Ms. Anne Marie McManus, P.E.

RE : *Test Drilling Services at BB&S  
Site, Speonke, Long Island, NY*  
(Revised November 15, 1995)

Ladies & Gentlemen:

**Buffalo Drilling Company, Inc.** is pleased to submit this proposal for exploratory drilling services at the above referenced landfill site. The estimated scope of services and costs to complete the required efforts are presented below for consideration.

## SCOPE OF SERVICES AND COSTS

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Malcolm Pirnie, Inc.  
Scope of Services and Costs  
**BB&S Site**

Page 2 of 4

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Malcolm Pirnie, Inc.  
Scope of Services and Costs  
**BB&S Site**

Page 3 of 4

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Malcolm Pirnie, Inc.  
Scope of Services and Costs  
BB&S Site

Page 4 of 4

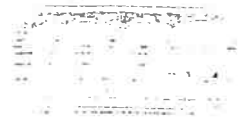
Thank you for the opportunity to submit this proposal. Please call at your earliest convenience, if questions should rise.

Very truly yours,  
**BUFFALO DRILLING COMPANY, INC.**

A handwritten signature in black ink, appearing to read "J. S. Barron". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

James S. Barron, P.E.  
President

JSB:kmk



November 3, 1995

Diane Babbitt  
A/E Blueprinting  
4050 Ridge Lea Road  
Amherst, New York 14228

Re: Request for Proposal (RFP)  
BB&S Site Remedial Investigation/Feasibility Study  
Reproduction Services

Dear Diane:

Malcolm Pirnie, Inc. Has been retained by the New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, to conduct a Remedial Investigation/Feasibility Study at the BB&S Site located in Speonk, Long Island, New York. This RFP has been prepared for the purposes of soliciting proposals for reproduction and blueprinting services for the reports generated for the site. Report preparation is tentatively scheduled to begin in July of 1996. Our evaluation of your proposal will be based on your responsiveness to the outlines Scope of Work and your cost quotation.

### **Scope of Work**

**Task 1. Remedial Investigation Report** - The Remedial Investigation Report will have a Draft and Final version. The reports will need to be spiral bound and printed on 20 Lb. white paper. Front and back card stock cream covers overlain by clear 8½" x 11" acetates will be needed for each report. The Remedial Investigation Report will be approximately three hundred fifty (350) 8½" by 11" sheets and ten (10) 11" by 17" sheets. Twelve copies per each version (i.e. 12 for Draft and 12 for Final) are needed for a total of 8400 8½" by 11" sheets and 240 11" by 17" sheets. In addition, 12 copies per version of 12 blueprints (144 total) will need to be reproduced from a mylar original, folded and inserted into clear pockets at the back of the report.

**Task 2. Feasibility Report** - The Feasibility Report will have a Draft and Final version. The reports will need to be spiral bound and printed on 20 Lb. white paper. Front and back card stock cream covers overlain by clear 8½" x 11" acetates will be needed for each report. The Feasibility Report will be approximately one hundred fifty (150) 8½" by 11" sheets and ten (10) 11" by 17" sheets. Twelve copies per each version (i.e., 12 for Draft and 12 for Final) are needed for a total of 3600 8½" by 11" sheets and 240 11" by 17 " sheets.



Diane Babbitt  
A/E Blueprinting

November 3, 1995  
Page 2

Please submit your proposal by 4:00 p.m., November 9, 1995.

Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, New York 14127  
Attention: Judith Vangalio

If there are any questions, please contact me at (716) 828-1300.

Very truly yours,

MALCOLM PIRNIE, INC.

A handwritten signature in cursive script that reads 'Judith Vangalio'. The signature is written in dark ink and is positioned above the printed name and title.

Judith Vangalio  
Environmental Scientist

0266-323-100

JV11035.L5

**If Busy 883-6300**

23 Вольга 894-4266



4050 ridgelea road amherst, new york 14228 tel: (716) 834-4579

NOV. 9, 95

MALCOLM PIRNTE, INC.  
5-3515 ABBOTT ROAD  
ORCHARD PARK, NEW YORK 14127  
ATTN: JUDITH VANCALIO

RE: PROPOSAL QUOTE  
REPRODUCTION SERVICES

TASK 1

8 1/2 x 11 sheets	.07 ea.	
17 x 17 sheets	.14 ea.	
BLUEPRINTS (24x36)	1.00 ea.	
PUNCHING & BINDING	3.00 ea.	report
APPROX. COST PER REPORT	\$31.90	

Task 1  
\$765.60

TASK 2

AS PER ABOVE PRICING  
FEASIBILITY REPORT APPROX. EA. 11.90

Task 2  
\$357.60

IF YOU HAVE ANY QUESTIONS REGARDING THIS PRICING  
PLEASE FEEL FREE TO CALL. 834-4579

THANK YOU,

DIANE D. BABBITT  
A/E BLUEPRINTING, INC.

---

# EDWARD O. WATTS, P.E., P.C.

---

SUITE 220 • 1331 NORTH FOREST ROAD • BUFFALO, NEW YORK 14221  
(716) 688-4827 FAX: (716) 688-4844



December 21, 1995

Ann Marie McManus  
Malcolm Pirnie, Inc.  
P. O. Box 1938  
S3515 Abbott Road  
Buffalo, New York 14219

Attention: Judy Vangalio

**RE: State Superfund Standby Contract  
Work Assignment D002852-15  
BB&S Lumber R1/FS Work Plan**

Dear Ms. Vangalio:

This letter is in response to the NYSDEC administrative review comment letter dated December 1, 1995. Item 4 of the comment letter regards the Edward O. Watts, P.E., P.C., (EOW) professional service contract. The following is offered in order to satisfy the NYSDEC questions.

- a) Three written quotes are provided for the surveying contract. We recommend accepting the low bid of \$6,650.00 provided by Wendel.
- b) Three written quotes are provided for the submersible pump rental. We recommend accepting the low bid of \$4,000.00 provided by Response Rentals.
- c) \$75.00 per day shipping charge is budgeted for each of the anticipated sampling days for a total of \$1,950.00. This charge is required for shipping sample coolers to the laboratory.
- d) Miscellaneous expenses are not anticipated to run more than \$1,000.00. The line item for miscellaneous expenses refers to anticipated expenditures related to sampling including: ice, tape, coolers, tubing, and decontamination supplies. \$50.00 per day has been estimated for each of 18 sampling days for a total of \$900.00.

I trust this response satisfies both you and the NYSDEC Contract Manager.

Judy Vangalio  
Malcolm Pirnie, Inc.  
December 21, 1995  
Page 2

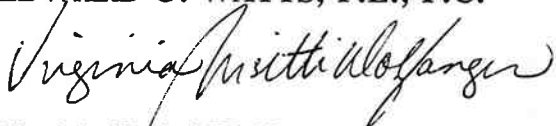
Please note that shipping charges and sales tax (if applicable) for rental equipment have not been included in our estimate.

We would greatly appreciate the opportunity to add these costs to our estimate at this time. The total shipping charges are estimated to be \$675.00 and the total sales tax charges are expected to be \$330.00 as itemized on the attached spreadsheet.

Thank you for your consideration.

Very truly yours,

**EDWARD O. WATTS, P.E., P.C.**

A handwritten signature in cursive script, reading "Virginia Ursitti Wolfanger".

Virginia Ursitti Wolfanger

VUW/mew  
Enclosure

c:\user\malcol.vuw



# LABOR

## NON-SALARY DIRECT EXPENSES

Item	Units	Number	Cost per Unit	Total Cost w/o tax & shipping	Tax 8%	Shipping
Copying (HASP)	page	3750	\$0.04	\$150.00		
Per Diem	day	16	\$151.00	\$2,416.00		
Vehicle Rental	week	4	\$280.00	\$1,120.00		
HyDAC (cond., temp., pH)	week	3	\$100.00	\$300.00	\$24.00	\$50.00
Solinst (water level)	week	3	\$75.00	\$225.00	\$18.00	\$50.00
Turbidity Meter	week	3	\$65.00	\$195.00	\$15.60	\$50.00
Submersible pumps (3)	week	3	\$800.00	\$2,400.00	\$192.00	\$300.00
Hose	feet	400	\$1.19	\$476.00	\$38.08	\$100.00
Level D PPE*	man-day	18	\$14.00	\$252.00		
Misc. Sampling Equipment	day	18	\$50.00	\$900.00		
Ice						
Tape/Labels						
Coolers						
Decon Materials						
Teflon Tubing						
Shipping	day	18	\$75.00	\$1,350.00		
Disposable Polyethylene Bailers	bailer	42	\$8.00	\$336.00	\$26.88	\$50.00
Peristaltic Pump	week	2	\$85.00	\$170.00	\$13.60	\$50.00
Filter	each	1	\$12.50	\$12.50	\$1.00	\$25.00
<b>Total DNSCs</b>				<b>\$10,302.50</b>	<b>\$329.16</b>	<b>\$675.00</b>

# EDWARD O. WATTS, P.E., P.C.

SUITE 220 • 1331 NORTH FOREST ROAD • BUFFALO, NEW YORK 14221  
(716) 688-4827 FAX: (716) 688-4844



December 7, 1995

Peter Welsby, P.L.S.  
Wendel  
7405 Canal Road  
Lockport, New York 14095

**Re: Request for Cost Proposal;  
BB&S Site Remedial Investigation/Feasibility Study  
Land Surveying Services**

Dear Mr. Welsby:

Malcolm Pirnie, Inc. has been retained by the New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, to conduct a Remedial Investigation/Feasibility Study at the BB&S Site in Speonke, Long Island, New York. Edward O. Watts, P.E., P.C. (EOW) is preparing this RFP for the purpose of soliciting proposals for professional land surveying services at the site. Field work is tentatively scheduled to take place in the Winter of 1996. Our evaluation of your proposal will be based on your responsiveness to the Scope of Work outlined below and your cost quotation.

## Site Description

The BB&S site has been characterized by the NYSDEC as an inactive hazardous waste disposal site that poses a potential threat to both public health and the environment. This 10-acre site is listed in the New York State Register of Inactive Hazardous Waste Sites (Site No. 152123). The site is an active wood treatment facility that uses a solution of chromate copper arsenate (CCA) as a wood preservative. Discharges of CCA to the ground have contaminated the groundwater in excess of drinking water standards.

The site is underlain by fine to coarse grained sand and gravel with quartz pebbles from grade. These porous and permeable sediments are Pleistocene Age glacial outwash deposits of the Upper Glacial Aquifer. The aquifer at this location is approximately 100-150 feet thick and is underlain by Gardiners clay (approximately 50-100 feet thick) and the Cretaceous Age Magothy Aquifer (approximately 1000+ feet thick).

## Scope of Work

The services required include the following land surveying services:

- Location of six (6) soil boring locations;
- Location of six (6) Hydropunch boring locations;

---

• Environmental Engineering Consultants • Environmental Assessments  
• Hazardous Waste & Asbestos Training • Civil / Transportation Engineering



American Consulting  
Engineers Council Member  
Supporting Excellence  
In Engineering



Mr. Welsby  
December 7, 1995  
page 2

- Location and elevation of 22 monitoring wells;
- Location and elevation of 2 drinking water wells;
- Reference to NYS Plane Coordinate System;
- Reference to USGS (or NGS) datum; and
- Ground control for tie-in to aerial photography.

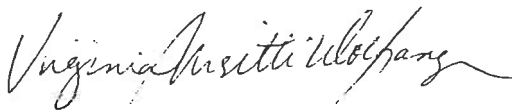
Please assume the following when preparing your cost proposal:

- Certification of personnel trained in 40-hour OSHA hazardous waste site workers course and appropriate medical surveillance is required;
- Level D personal protective equipment will be required of all on-site personnel;
- Subcontractor will adopt health and safety plan prepared by EOW;
- Watts Engineers will provide office oversight and field assistance in locating wells and sampling locations;
- Existing features will be used for control points and the surveyors will not have to set targets at the site;
- Working conditions include flat terrain; and
- Equipment storage trailer will not be available on site.

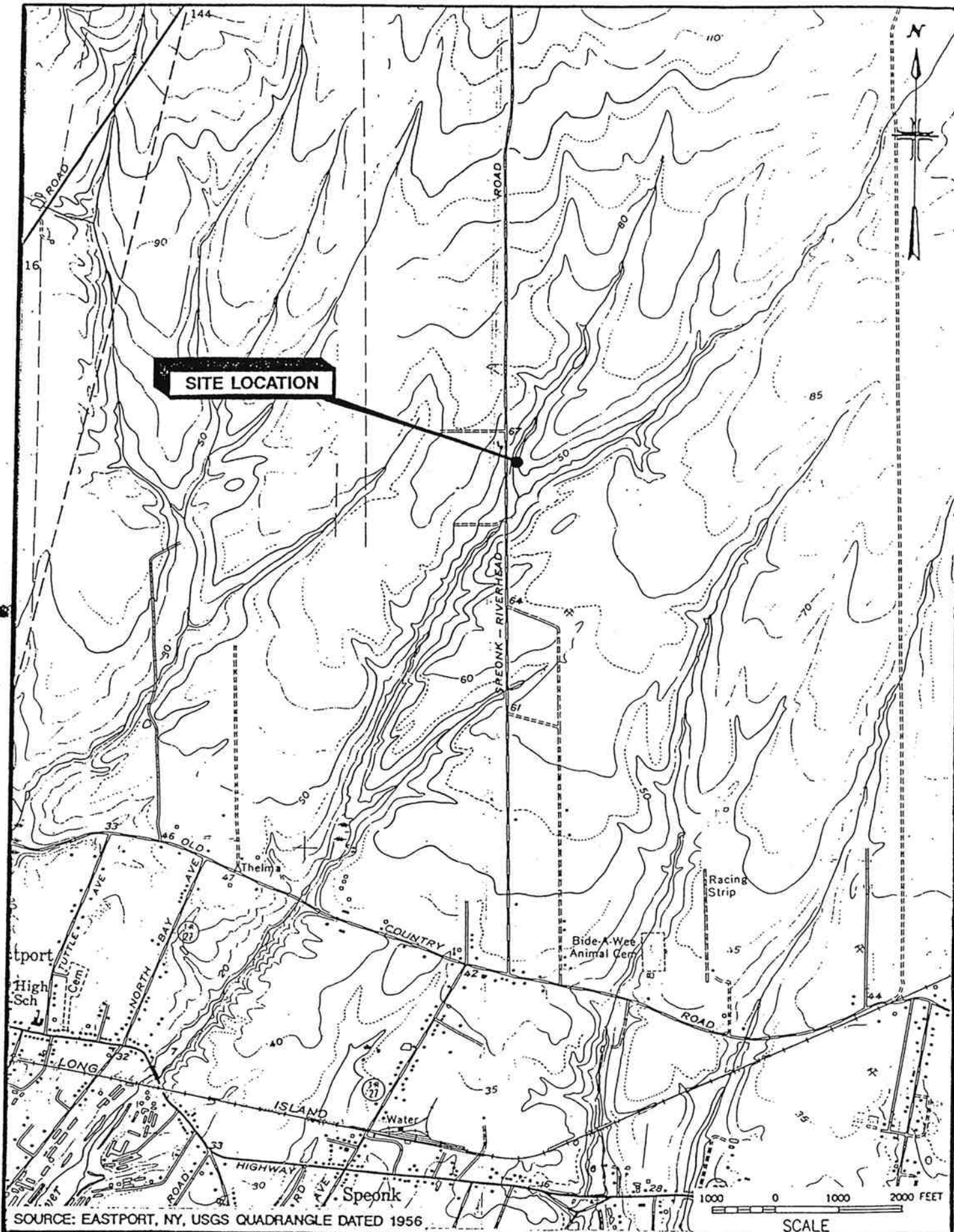
Please submit your quotation by fax by 4:00 pm, December 8, 1995 and follow up with a hard copy by mail. Our fax number is (716) 688-4844. Should you wish not to respond to this RFP, if questions arise, or if additional information is required, please call me as soon as possible at (716) 688-4827, extension 131.

Very Truly Yours,

EDWARD O. WATTS, P.E., P.C.



Virginia Ursitti Wolfanger, QEP  
Senior Environmental Scientist



**MALCOLM  
PIRNIE**

BB & S TREATED LUMBER  
SPEONK, NEW YORK  
**SITE LOCATION MAP**

MALCOLM PIRNIE, INC.

0266-323-1001

FIGURE 1

# WENDEL

7405 CANAL ROAD  
P.O. BOX 501  
LOCKPORT, NEW YORK 14095  
716/433-5993 or 625-8228  
FAX 716/433-7604



December 6, 1995

Watts Engineers  
Suite 220  
1331 North Forest Road  
Williamsville, NY 14221

Attention: Ms. Virginia Wolfanger

SUBJECT: Request for Proposal (RFP)  
BB&S Site Remedial Investigation/Feasibility Study  
Surveying Services

Dear Ms. Wolfanger:

Wendel is pleased to provide the following estimate to supply surveying services at the site referenced above.

To complete the scope of surveying services detailed in correspondence dated December 5, 1995, we have estimated a fee of six thousand six hundred fifty dollars (\$6,650).

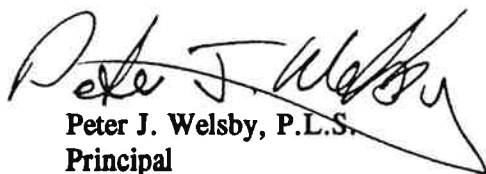
Locations will be referenced to the New York State Plane Coordinate System, Long Island Zone, and elevations will be referenced to USGS (or NGS) datum.

We understand this project will be completed during the winter or early spring of 1996. Our estimate is based on the fact that all field work will be completed during a single effort of six (6) consecutive days and that EPA Level D conditions will prevail.


Thank you for the opportunity to provide this proposal.

Sincerely,

WENDEL SURVEY

  
Peter J. Welsby, P.L.S.  
Principal

c:\prop\watts1

  
Charles F. Bigelow, Jr., P.L.S.  
Project Manager

---

# CORPORATE DATA

**Firm Name:** Wendel (A Professional Corporation)

**Former Firm Names:** Wendel Associates, 1970-1975  
The Office of Leon Wendel, 1940-1970

**Total Years of Practice for Firm (Present and Past Names):** Fifty-five (55) years

**Office Location:** Two (2) offices - Buffalo and Lockport, NY

**Organization:** Four Business Teams: Survey; Municipal; Buildings; and Mechanical, Electrical and Structural Engineering

---

## SURVEY BUSINESS TEAM

**Team Leader:** Peter J. Welsby, P.L.S., Principal

**Operations Manager:** Ronald H. Bickle, P.L.S.

**Project Managers:** Timothy R. Woodbury, P.E., L.S., Associate Principal  
Ronald H. Bickle, P.L.S.  
Charles F. Bigelow, Jr., P.L.S.  
Anthony E. Gagliardi

**Field Crew Chiefs:** Marshall D. Wilson, P.L.S.  
Mark J. Balk  
Jeffrey M. Gardner  
Michael J. Penzotti  
Michael D. Rozeski  
Douglas R. Turner

**Project Assistant:** Carla A. Narchus

**Mapping Manager:** Brian N. Skalman

## Background and Philosophy

Founded in 1940, Wendel is a creative, award-winning multidisciplinary consulting firm providing engineering, architecture, energy management, survey, landscape architecture, planning, grants writing and construction management services. The in-house integration of these services allows Wendel to create innovative solutions as projects evolve from concept to reality.

Wendel operates out of two offices – one in Buffalo and one in Lockport, NY. Our commitment to excellence is evident in thousands of projects which have helped to improve both our communities and our workplaces. With over 100 employees, Wendel has developed professional capabilities across many markets with projects including commercial and industrial buildings, educational and institutional facilities, roads and bridges, facility or site infrastructure, waterfront parks, recreational and sporting facilities, laboratories and hospitals, industrial processes, boundary line determination and more.

Because excellence depends upon leadership, at Wendel each project is assigned to a principal of the firm. We believe this fosters communication between clients and Wendel, assures project priority and responsiveness, and ensures expertise and performance.

## Commitment to Quality

As a continuation of over 55 years of providing high calibre services, Wendel implemented a corporate-wide Total Quality Management (TQM) Program in 1991. Wendel's fundamental objective is to deliver professional services that meet the quality goals of our clients. This commitment to total quality extends not only to our clients, but to every co-worker who receives service that any one of us provides. Wendel's program utilizes partnering and team building as primary vehicles to enhance and accomplish quality.

## **SAMPLING OF MAJOR PROJECT EXPERIENCE**

### **1986 Wide Beach Superfund Site**

Provide surveying and mapping services for remediation of a residential subdivision road contaminated with P.C.B.'s.

EPA Level-C

### **1988 and 1994 Byron Barrel and Drum Superfund Site**

Provide control survey for photogrammetric mapping; monitoring well survey and boundary survey services.

EPA Level-D

### **1985-1994 BFI/CECOS**

Provide general surveying services at landfill site consisting of both sanitary and hazardous landfills. Services include boundary and topographic surveys; Monitoring well locations; Landfill liner construction and QA/QC surveys; Landfill operations surveys; Landfill capping construction and QA/QC surveys; Surface water detention and collection survey and methane gas collection system survey.

EPA Level-C&D

### **1989-93 CWM Model City SLF-12**

Topographic survey for proposed landfill site; Construction and QA/QC surveying services during liner construction; Internal berm advancement survey and construction control during interim clay cap construction.

EPA Level-C&D

### **1994-95 Niagara County Landfill**

Surveying services during construction of interior separation berm.

EPA Level-D

### **1994-95 City of Lockport Landfill**

Construction control and QA/QC survey during placement of clay cap for remediation of inactive municipal landfill.

EPA Level-D

### **1995 Occidental Chemical "S" Area**

Construction control for installation of leachate collection system.

EPA Level-C



# SURVEY AND LAND INFORMATION

## Services

Survey is the first vital step in any land development or construction process. It serves to delineate the boundaries, area, volumes or grades of the parcel and to produce accurate, reliable documentation throughout the life of a project.

For over 50 years, Wendel has provided surveying services for virtually all applications, ranging from boundary surveys to construction and industrial needs. Our team is rich with experienced and qualified individuals, each cognizant of today's technology. The following is a complete list of our survey services:

### **Geodetic Control**

- Second and third order horizontal and vertical networks
- State Plane Coordinate System
- National Geodetic Vertical Datum
- International Great Lakes Datum
- Site specific datums

### **Boundary/Right-of-Way Acquisition**

- Residential, Commercial and Industrial
- Acreage
- ALTA/ACSM
- Parcel layout

### **Construction**

- Earthwork
- Utility stakeout
- Roads and bridges
- Drainage/hydraulic survey
- Site development
- Building stakeout
- Industrial applications/construction control for equipment foundations
- As-built surveys/record drawings

### **Topographic/Hydrographic/Photogrammetric**

- Planimetric
- Elevations
- Contours
- Utility locations
- Inverts
- Off shore

### **Mapping**

- Manual document
- CAD mapping
- 3-D mapping
- Digital terrain modeling
- Subdivision platting
- Profiles
- Cross-sections
- Topographic

### **Landfill/Hazardous Site Survey**

- Monitoring well locations and elevations
- Liner construction
- Cap construction
- Quality assurance survey
- Volumes: materials and air space
- Grade conformance
- Thickness verification

## Equipment



Our team combines their knowledge of survey technology with state-of-the-art equipment designed and selected to best meet the requirements of our clients. Combining laptop computers with electronic field equipment allows our survey teams to quickly measure and display survey information for optimum field efficiency and to enhance the final compilation and completion of digital mapping.

### **Equipment:**

- Wild T-1000/DI-1000 and TC-500 electronic total stations
- Wild NA-28 and NA-24 automatic levels
- Electronic data collectors with MAPTECH field pack software
- Wild TIA Theodolites
- Electronic Distance Meters
- Two-way radios
- IBM compatible computers with MAPTECH survey software, AutoCAD and Intergraph Micro Station
- Laptop field computers

## Safety and Training

Wendel requires the following of all field survey personnel:

- 40 hours of safety training in compliance with OSHA Regulation 29CFR1910.120 and annual 8-hour refresher courses
- General first aid and CPR courses
- Annual physicals
- Medical surveillance program including use of a respirator

## Private and Residential Survey Experience

*Wendel Survey ... Retracing the Boundaries of Western New York into the Quality Era.*



Wendel has been providing surveying services to land owners, developers and municipalities since 1940.

In 1980, we purchased the records of several former local surveyors (J.P. Haines, J. Frehsee, J.F. Frehsee, C. Hinton and J. Hinton) expanding our reference library to date back to 1823.

These records have proved to be a valuable resource in preparing for today's projects, helping to identify problems of occupation and title.

Wendel's monitoring program of the local real estate market helps to prepare us for the periods of high volume, aiding in the delivery of surveys in time to meet our client's needs.

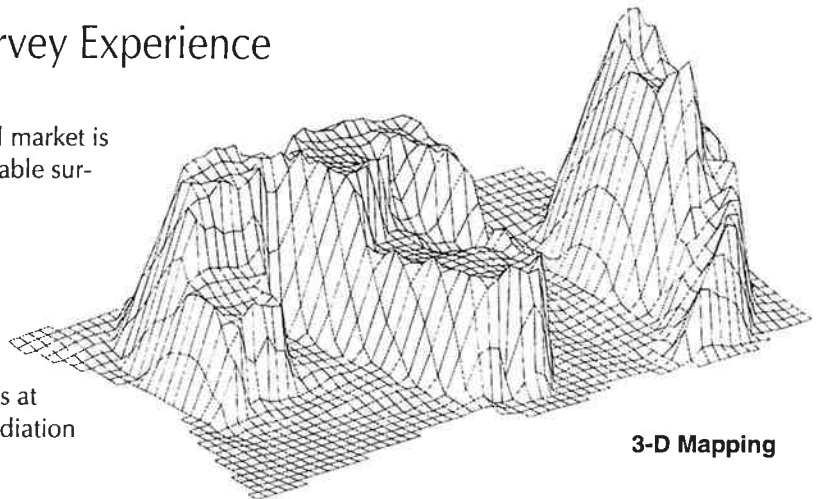
Each year, well over 700 surveys are routinely completed by Wendel, including small urban residential parcels, subdivisions, large farm tracts, industrial and commercial sites.

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## Commercial and Industrial Survey Experience

Our experience in the commercial and industrial market is vast and has involved the application of all available surveying services.

Innovation plays an important role here, where routine tasks may need to be completed in unique environments. A team approach to problem solving has resulted in the successful completion of some difficult and unusual projects at industrial facilities, landfill sites, hazardous remediation sites and commercial properties.



**3-D Mapping**

---

## Transportation and Route Survey Experience

From preliminary control survey through construction, Wendel has provided survey services on all phases of projects in this diverse market.

Our personnel have gained experience in a variety of projects including bridge reconstruction; highway projects;

new construction and rehabilitations; rail systems; and international pipelines. This diverse mix of experience brings together a team of unique talents, capable of efficiently completing any project awarded.

**WENDEL**

---

# EDWARD O. WATTS, P.E., P.C.

---

SUITE 220 • 1331 NORTH FOREST ROAD • BUFFALO, NEW YORK 14221  
(716) 688-4827 FAX: (716) 688-4844



December 5, 1995

Claire Fisher  
Fisher Associates  
10267 Old Route 31  
Clyde, New York 14333

**Re: Request for Cost Proposal;  
BB&S Site Remedial Investigation/Feasibility Study  
Land Surveying Services**

Dear Ms. Fisher:

Malcolm Pirnie, Inc. has been retained by the New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, to conduct a Remedial Investigation/Feasibility Study at the BB&S Site in Speonke, Long Island, New York. Edward O. Watts, P.E., P.C. (EOW) is preparing this RFP for the purpose of soliciting proposals for professional land surveying services at the site. Field work is tentatively scheduled to take place in the Winter of 1996. Our evaluation of your proposal will be based on your responsiveness to the Scope of Work outlined below and your cost quotation.

## Site Description

The BB&S site has been characterized by the NYSDEC as an inactive hazardous waste disposal site that poses a potential threat to both public health and the environment. This 10-acre site is listed in the New York State Register of Inactive Hazardous Waste Sites (Site No. 152123). The site is an active wood treatment facility that uses a solution of chromate copper arsenate (CCA) as a wood preservative. Discharges of CCA to the ground have contaminated the groundwater in excess of drinking water standards.

The site is underlain by fine to coarse grained sand and gravel with quartz pebbles from grade. These porous and permeable sediments are Pleistocene Age glacial outwash deposits of the Upper Glacial Aquifer. The aquifer at this location is approximately 100-150 feet thick and is underlain by Gardiners clay (approximately 50-100 feet thick) and the Cretaceous Age Magothy Aquifer (approximately 1000+ feet thick).

## Scope of Work

The services required include the following land surveying services:

- Location of six (6) soil boring locations;
- Location of six (6) Hydropunch boring locations;



American Consulting  
Engineers Council Member  
Supporting Excellence  
In Engineering

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• Environmental Engineering Consultants • Environmental Assessments  
• Hazardous Waste & Asbestos Training • Civil / Transportation Engineering



Ms. Fisher  
December 5, 1995  
page 2

- Location and elevation of 22 monitoring wells;
- Location and elevation of 2 drinking water wells;
- Reference to NYS Plane Coordinate System;
- Reference to USGS (or NGS) datum; and
- Ground control for tie-in to aerial photography.

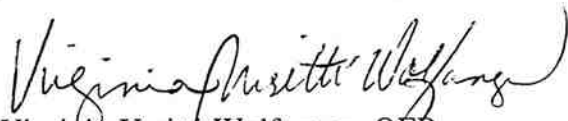
Please assume the following when preparing your cost proposal:

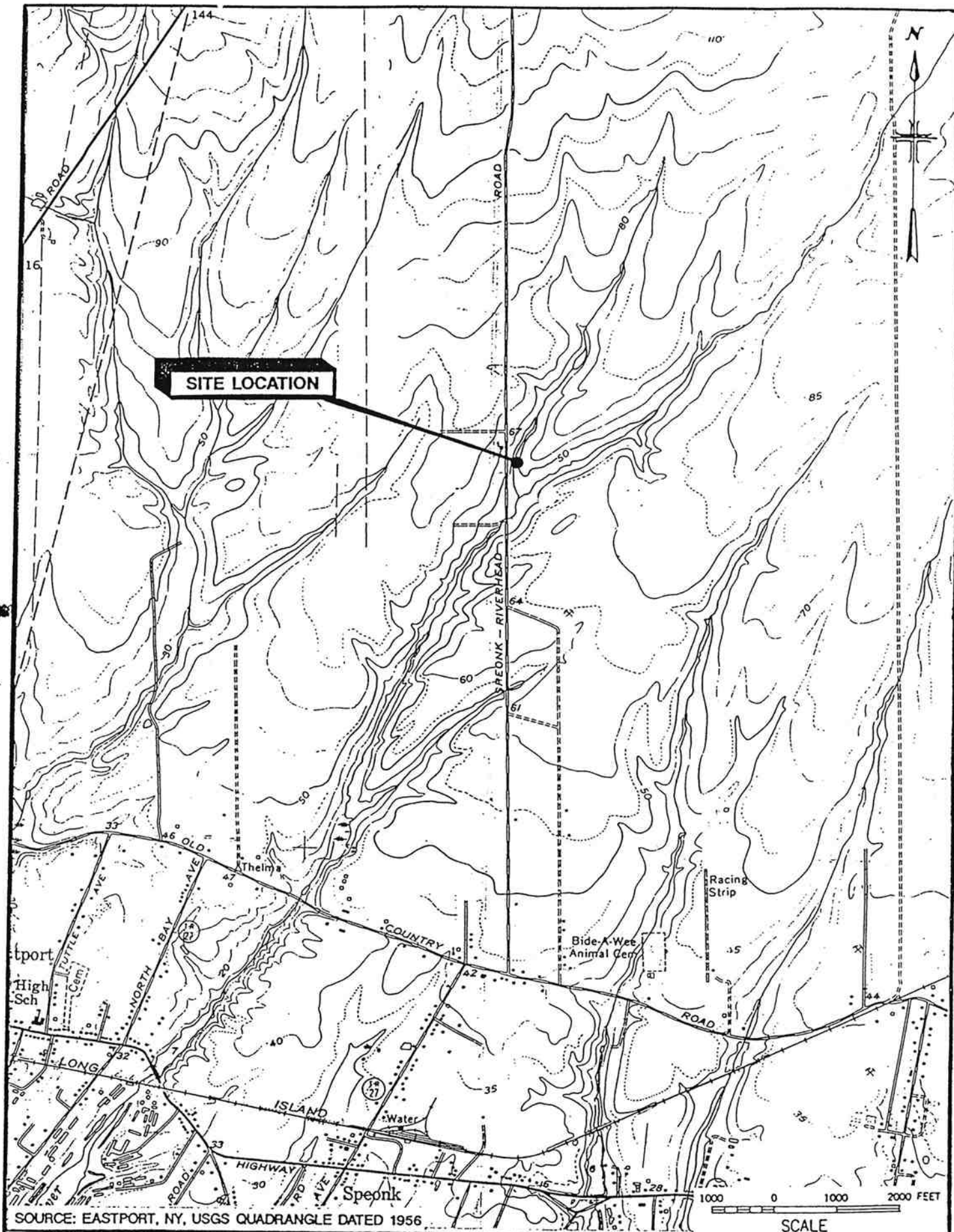
- Certification of personnel trained in 40-hour OSHA hazardous waste site workers course and appropriate medical surveillance is required;
- Level D personal protective equipment will be required of all on-site personnel;
- Subcontractor will adopt health and safety plan prepared by EOW;
- Watts Engineers will provide office oversight and field assistance in locating wells and sampling locations;
- Existing features will be used for control points and the surveyors will not have to set targets at the site;
- Working conditions include flat terrain; and
- Equipment storage trailer will not be available on site.

Please submit your quotation by fax by 4:00, December 8, 1995 and follow up with a hard copy by mail. Our fax number is (716) 688-4844. Should you wish not to respond to this RFP, if questions arise, or if additional information is required, please call me as soon as possible at (716) 688-4827, extension 131.

Very Truly Yours,

EDWARD O. WATTS, P.E., P.C.

  
Virginia Ursitti Wolfanger, QEP  
Senior Environmental Scientist



**MALCOLM  
PIRNIE**

BB & S TREATED LUMBER  
SPEONK, NEW YORK  
**SITE LOCATION MAP**

MALCOLM PIRNIE, INC.

0266-323-1001

**FIGURE 1**



December 8, 1995

Virginia Ursitti Wolfanger, QEP  
Edward O. Watts, P.E., P.C.  
Suite 220  
1331 North Forest Road  
Buffalo, New York 14221

Re: Land Surveying Services  
BB&S Site RI/FS  
Speonke, New York

Dear Ms. Wolfanger:

Pursuant to your request for Land Surveying Services for the above-mentioned project, we are pleased to submit the following proposal:

**Scope of Services**

Fisher Associates, P.E., L.S., P.C., will provide by means of GPS observations X and Y coordinate values on the New York State Plane Coordinate System, North American Datum of 1983 and Z coordinate values using the North American Vertical Datum of 1988. Horizontal relative accuracy will be  $5 \text{ mm} \pm 1 \text{ ppm}$  and terms of the z value will be  $10 \text{ mm} \pm 1 \text{ ppm}$ . The coordinates will be established on 24 wells( 22 monitoring, 2 drinking), 12 boring locations as delineated by Edward O. Watts and all photogrammetric ground control, as selected by a photogrammetric sub-contractor, required to produce stereocompiled photogrammetric mapping. Fisher will be responsible for reconnoitering of NGS control stations. This proposal assumes that three elevations will be required at all monitoring wells and no project survey baseline points or benchmarks will be left on site. Field work could be anticipated January 22, 1996.

A short report will be submitted with a listing of horizontal and vertical coordinates, published control used, and any difficulties encountered.

10267 OLD ROUTE 31  
CLYDE, NEW YORK 14433  
(315) 923-7787 (Phone)  
(315) 923-1592 (Fax)

3495 WINTON PLACE, BUILDING E  
ROCHESTER, NEW YORK 14623  
(716) 424-2770 (Phone)  
(716) 424-2771 (Fax)


page 2  
12/8/95

The cost to provide the above described services is a lump sum fee of \$9,250.00. This cost includes all field work associated with the project to be governed by prevailing wage rates as set forth by the New York State Department of Labor and appropriate per diem rates. All project field personnel will be certified in OSHA's 40-hour hazardous waste site work.

We appreciate the opportunity to submit this proposal. Feel free to contact me at 716-424-2770 should you have any questions on the project or require any additional information.

Very Truly Yours,

**FISHER ASSOCIATES, P.E., L.S., P.C.**



Bryan A. Merritt, L.S.  
Senior Surveyor

Agreed to this \_\_\_\_\_ day of \_\_\_\_\_ 1995.

by \_\_\_\_\_  
Edward O. Watts, P.E., P.C.

BAM/wp/

---

# EDWARD O. WATTS, P.E., P.C.

---

SUITE 220 • 1331 NORTH FOREST ROAD • BUFFALO, NEW YORK 14221  
(716) 688-4827 FAX: (716) 688-4844



December 7, 1995

Joanne Crum, P.L.S.  
45 W. Main Street  
Cobleskill, New York 12043

**Re: Request for Cost Proposal;  
BB&S Site Remedial Investigation/Feasibility Study  
Land Surveying Services**

Dear Ms. Crum:

Malcolm Pirnie, Inc. has been retained by the New York State Department of Environmental Conservation (NYSDEC), Division of Hazardous Waste Remediation, to conduct a Remedial Investigation/Feasibility Study at the BB&S Site in Speonke, Long Island, New York. Edward O. Watts, P.E., P.C. (EOW) is preparing this RFP for the purpose of soliciting proposals for professional land surveying services at the site. Field work is tentatively scheduled to take place in the Winter of 1996. Our evaluation of your proposal will be based on your responsiveness to the Scope of Work outlined below and your cost quotation.

## Site Description

The BB&S site has been characterized by the NYSDEC as an inactive hazardous waste disposal site that poses a potential threat to both public health and the environment. This 10-acre site is listed in the New York State Register of Inactive Hazardous Waste Sites (Site No. 152123). The site is an active wood treatment facility that uses a solution of chromate copper arsenate (CCA) as a wood preservative. Discharges of CCA to the ground have contaminated the groundwater in excess of drinking water standards.

The site is underlain by fine to coarse grained sand and gravel with quartz pebbles from grade. These porous and permeable sediments are Pleistocene Age glacial outwash deposits of the Upper Glacial Aquifer. The aquifer at this location is approximately 100-150 feet thick and is underlain by Gardiners clay (approximately 50-100 feet thick) and the Cretaceous Age Magothy Aquifer (approximately 1000+ feet thick).

## Scope of Work

The services required include the following land surveying services:

- Location of six (6) soil boring locations;
- Location of six (6) Hydropunch boring locations;
- Location and elevation of 22 monitoring wells;
- Location and elevation of 2 drinking water wells;



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In Engineering

---

• Environmental Engineering Consultants • Environmental Assessments  
• Hazardous Waste & Asbestos Training • Civil Transportation Engineering





Ms. Crum  
December 7, 1995  
page 2

- Reference to NYS Plane Coordinate System;
- Reference to USGS (or NGS) datum; and
- Ground control for tie-in to aerial photography.

Please assume the following when preparing your cost proposal:

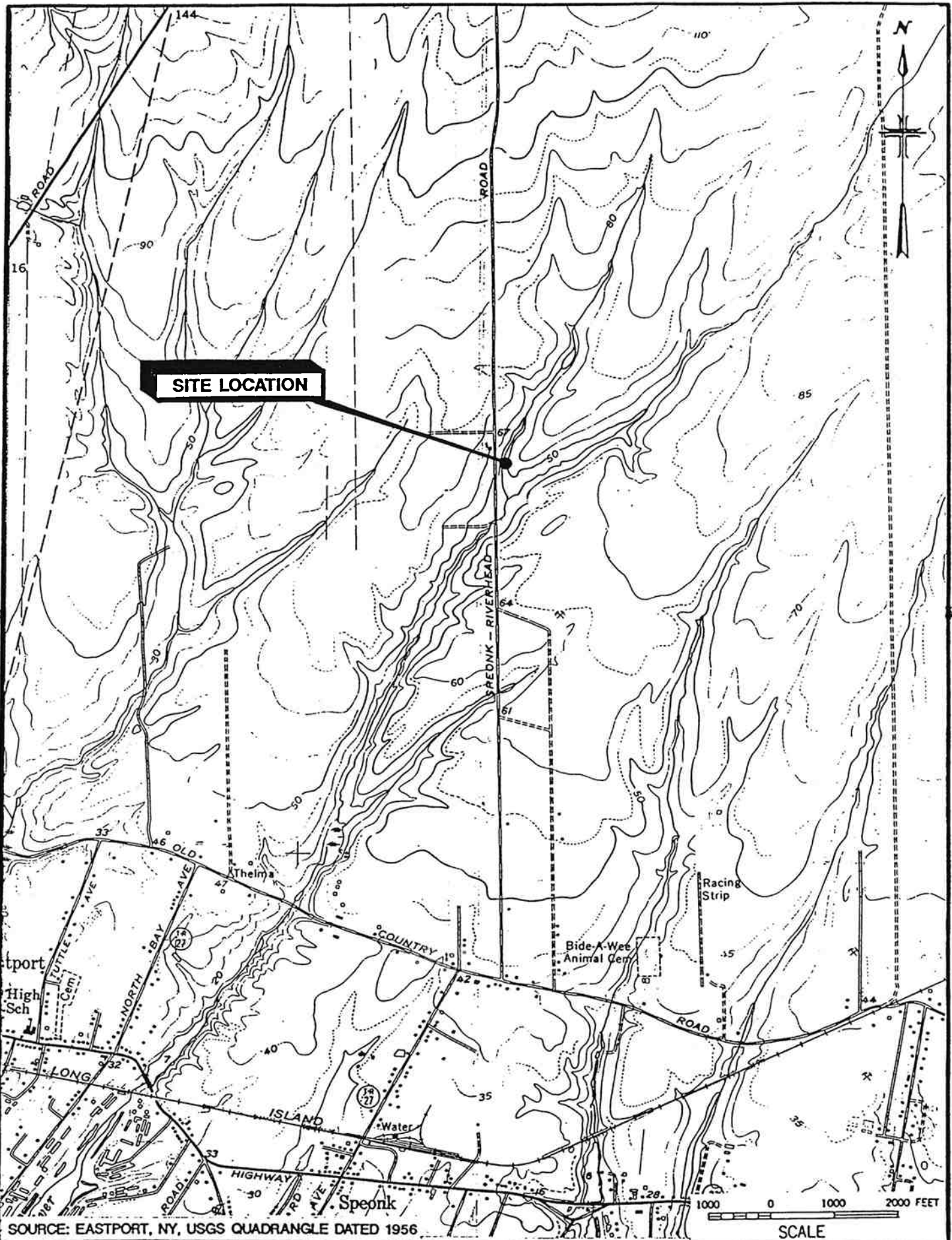
- Certification of personnel trained in 40-hour OSHA hazardous waste site workers course and appropriate medical surveillance is required;
- Level D personal protective equipment will be required of all on-site personnel;
- Subcontractor will adopt health and safety plan prepared by EOW;
- Watts Engineers will provide office oversight and field assistance in locating wells and sampling locations;
- Existing features will be used for control points and the surveyors will not have to set targets at the site;
- Working conditions include flat terrain; and
- Equipment storage trailer will not be available on site.

Please submit your quotation by fax by 4:00 pm, December 8, 1995 and follow up with a hard copy by mail. Our fax number is (716) 688-4844. Should you wish not to respond to this RFP, if questions arise, or if additional information is required, please call me as soon as possible at (716) 688-4827, extension 131.

Very Truly Yours,

EDWARD O. WATTS, P.E., P.C.

Virginia Ursitti Wolfanger, QEP  
Senior Environmental Scientist



**MALCOLM  
PIRNIE**

BB. & S TREATED LUMBER  
SPEONK, NEW YORK  
**SITE LOCATION MAP**

**MALCOLM PIRNIE, INC.**

0266-323-1001

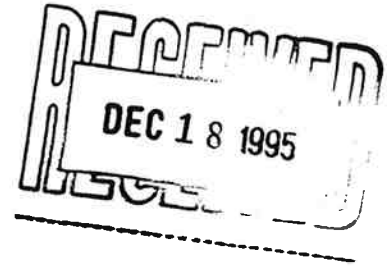
**FIGURE 1**

# JOANNE DARCY CRUM, L.S.

December 13, 1995

PROFESSIONAL LAND SURVEYOR

Ms. Virginia Ursitti Wolfanger, QEP  
Senior Environmental Scientist  
Edward O. Watts, P.E., P.C.  
1331 North Forest Road Suite 220  
Buffalo, New York 14221



RE: Request for Cost Proposal: BB&S Site Remedial  
Investigation/Feasibility Study Land Surveying Services

Dear Ms. Wolfanger:

Thank you for the opportunity to provide a proposal for the above reference project.

Based on the limited information provided, I would estimate 5 working days (including travel) to perform the required services.

My fee for the work to be performed would be \$10,710. The following is a breakdown of costs for the work to be performed:

Survey crew 40 hours @ \$ 160 per hour	\$ 6,400.00
Per diem (per NYS rates)	
(Four days for 2 person crew) \$180 per day	1,440.00
Mileage (750 miles @ \$.30 per mile)	225.00
Tolls	20.00
Misc. Charges (Telephone, Mail, Fax, Copies	
Postage, Drafting and Computer Media)	125.00
Principal 10 hours @ \$90 per hour	900.00
Office Tech 40 hours @ \$40	1,600.00

**GRAND TOTAL ..... \$10,710.00**

## Scope of Work:

- \* Location of six (6) soil borings locations
- \* Location of six (6) Hydropunch borings locations
- \* Location and elevation of twenty-two (22) monitoring wells
- \* Location and elevation of two (2) drinking water wells
- \* Referenced to NYS Plane Coordinate System
- \* Referenced to USGS (or NGS) datum
- \* Ground Control for aerial photography

continued

45 WEST MAIN STREET ♦ COBLESKILL, NEW YORK 12043  
TEL (518) 234-4650 ♦ FAX (518) 234-7405

**Deliverables will include:**

- \* Acad12.dwg diskette showing all locations and elevation
- \* Hard Copy of mapping signed and sealed
- \* Mylars available on request
- \* Copies of field data download and field sketches
- \* Survey Report of work performed

**The following assumptions are made regarding the above:**

- \* One (1) mobilization for project starting on a Monday morning
- \* Mapping is available in ACAD version 11 or 12.dwg format. If not, assume ten (10) additional Office Tech hours
- \* Existing control is intact and usable within 500 feet of project site
- \* Subject to payment of Prevailing Rate for Suffolk County
- \* NOT SUBJECT TO HAZARDOUS WASTE SUPPLEMENT
- \* No confined space entry is anticipated or allowed
- \* Any work beyond the scope outlined above to be authorized in advance and subject to rates listed above
- \* All personnel are certified with 24 or 40 hour hazardous waste training in conformance with OSHA 29 CFR 1910.120 regulations
- \* Level D PPE will be observed
- \* Health and Safety Plan of Watts will be adopted
- \* Watts Engineers will provide oversight and field assistance in locating wells and sampling locations
- \* Existing features will be used for aerial control points
- \* Working conditions include flat terrain
- \* It is understood that on site storage will NOT be available

This firm is certified as a Women's Business Enterprise (WBE) and as a Disadvantaged Business Enterprise (DBE). Certification letters are available upon request. I have included a copy of my current land surveyor registration.

We appreciate your consideration and look forward to being a part of the Edward O. Watts, P.E., P.C. team on this project. If you have any questions, please contact me at your convenience. I look forward to discussing this proposal with you.

Sincerely yours,

  
Joanne Darcy Crum, L.S.

JDC/jst  
encls.

# Response Rentals

# Price Quotation

**1057 East Henrietta Rd.  
Rochester, NY 14623  
(716) 424-2140 • FAX (716) 424-2166**

<b>Date:</b>	12/07/95 4:24 PM	<b>Customer Inquiry Date:</b>	12-7-95
<b>From:</b>	Craig J Mayers	<b>Proposed Ship Date:</b>	To be determined
<b>To:</b>	Virginia Wolfanger	<b>Terms:</b>	Net 30 days
<b>Company Name and Address:</b>	Watts Engineers 1331 North Forest Rd Suite 220 Williamsville, NY 14221	<b>To be Shipped Via:</b>	Best way
<b>Phone:</b>	(716) 688-4827	<b>F.O.B.:</b>	SP
<b>Fax:</b>	(716) 688-4844	<b>Salesperson:</b>	PF

**Here is our quotation for the goods named below, subject to the following :**

**CONDITIONS:** The prices and terms of this quotation are not subject to verbal changes or other agreements, unless approved in writing by the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and equipment, plus all other causes beyond Seller's control. Prices are based on costs and conditions existing at date of quotation and are subject to change by the Seller before Purchaser's acceptance of equipment. Typographic, stenographic, and clerical errors are subject to adjustment and Purchaser hereby agrees to re-execute any document that requires correction or signature. Seller makes no warranty, expressed or implied, that the equipment is fit for any particular purpose. Shipment of any products are subject to availability. Seller will make a reasonable effort to meet any delivery quoted. In the absence of specific shipping instructions, or if Purchaser's instructions are deemed unsuitable, Seller reserves the right to ship by the most appropriate method. Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein, which may appear on Purchaser's formal order, will not be binding on the Seller.

Quantity	Description	Price	Amount
1	Grundfos RediFlo2 pump w/reel, 100 feet or 200 feet	\$ 195/wk	\$ 390
1	Grundfos RediFlo2 pump w/reel, 300 feet	\$ 225/wk	\$ 450
1	Grundfos converter/speed controller, 115VAC	\$ 125/wk	\$ 250
	Discharge tubing, PVC	\$ .60/ft	
	Discharge tubing, teflon lined	\$ 1.00/ft	
	Discharge tubing, full teflon	\$ 2.00/ft	
<b>** Availability subject to prior rental or sale. **</b>			

**Shipping, insurance and applicable taxes are additional.**

**Quote is valid for up to 45 days from date of issue.**

**Terms are subject to credit approval.**

Total cost for 3 pumps,  
1 converter (300 ft reel)  
= \$840 per week \*  
TOTAL P.01

\* does not include tubing, tax, or shipping

# QUOTATION



PAGE 2 OF 2

2006 SPRINGBORO WEST RD.  
DAYTON, OH 45439  
PHONE: (800) 332 0435  
FAX: (513) 293 9227

INQUIRY NO: 120795GW

DATE: Dec. 7, 1995

TERMS: Net 30

DELIVERY:

F.O.B.

TO: Edward D. Watts

Buffalo NY

PHONE:

FAX:

(716) 688-4844

CUSTOMER ACCOUNT #

QTY	PART #	DESCRIPTION	DAILY	WEEKLY	MONTHLY	RECAL
1	BTI	220 V. Converter		145. <sup>00</sup>	522. <sup>00</sup>	
1	BMI	110 V. Converter		145. <sup>00</sup>	522. <sup>00</sup>	
1	MP1100	100' ft Motor Lead		210. <sup>00</sup>	756. <sup>00</sup>	
1	MP1150	150' ft Motor Lead		220. <sup>00</sup>	792. <sup>00</sup>	
1	MP1200	200' ft Motor Lead		230. <sup>00</sup>	828. <sup>00</sup>	
1	MP1300	300' ft Motor Lead		240. <sup>00</sup>	864. <sup>00</sup>	
		Availability varies				
		a lot. If you have a chance				
		to give someone to get.				

Total cost for 3 per  
1 converter (300 ft lead)  
= \$865 per week \*

\* does not include tubing, tax, shipping



1099 West Grand River Avenue  
Williamston, Michigan 48895  
Phone (800) 542-5681 • Fax (517) 655-1157

## PRICE QUOTATION

Shipped to:

ATTN: Virginia Wolfanger  
Edward O. Watts PE, PC  
Buffalo, NY  
(716) 688-4827 FAX (716) 688-4844

Date December 11, 1995	
Your Inquiry Dated December 11, 1995	
Proposed Shipping Date	
Terms Net 30	F.O.B. Williamston, MI
Salesperson Dennis Tugen	
To Be Shipped VIA UPS BLUE	

Here is our quotation on the goods named, subject to the conditions noted:

**CONDITIONS:** The prices and terms on this quotation are not subject to verbal changes or other agreements unless approved in writing by the Home Office of the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and all other causes beyond our control. Prices are based on costs and conditions existing on date of quotation and are subject to change by the seller before final acceptance. Typographical and stenographic errors subject to correction. Purchaser assumes liability for patent and copyright infringement when goods are made to Purchaser's specifications. Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein which may appear on Purchaser's formal order will not be binding on the Seller.

Quantity	Description	Price	Amount
1	Rental of Grundfos Rediflo-2 sampling pump. 30-300ft. lengths available with either a 110 or 220 volt controller.	\$130.00 /day	\$130.00 /day
	For weekly rate multiply daily rate times four.		
	Maintenance Fee	\$100.00	\$100.00

Quote Valid for 30 days.

By Dennis M. Tugen

total cost for 3 pumps, 3 service  
= \$1560 / per week \*

\* does not include tax, tubing, or shipping



**BB&S TREATED LUMBER  
AQUIFER TESTING EQUIPMENT RATES**

**Instrumentation Northwest:**

ITEM	UNIT PRICE	QUANTITY	TOTAL BUDGETED COST
Water Level Meter	\$80/week	2 weeks	\$160.00
Pressure Transducers (First Day Rate)	\$85/unit-day	10 unit-days	\$850.00
Pressure Transducers (Daily Rate)	\$15/unit-day	110 unit-days	\$1,650.00
Data Logger DL-8A (First Day Rate)	\$120/unit-day	1 unit-day	\$120.00
Data Logger DL-8A Daily Rate)	\$80/unit-day	11 unit-days	\$880.00
Data Logger DL-4A (First Day Rate)	\$80/unit-day	1 unit-day	\$80.00
Data Logger DL-4A (Daily Rate)	\$40/unit-day	11 unit-days	\$440.00
<b>TOTAL</b>			<b>\$4,020.00</b>

**In-Situ, Inc.:**

ITEM	UNIT PRICE	QUANTITY	TOTAL BUDGETED COST
Water Level Meter	\$80/week	2 weeks	\$160.00
Pressure Transducers (Daily rate-week 1)	\$35/unit-day	70 unit-days	\$2,450.00
Pressure Transducers (Daily rate-week 2)	\$25/unit-day	50 unit-days	\$1,250.00
Data Logger SE2000 (Daily rate-week 1)	\$170/unit-day	7 unit-days	\$1,190.00
Data Logger SE2000 (Daily rate-week 2)	\$120/unit-day	5 unit-days	\$600.00
<b>TOTAL</b>			<b>\$5,650.00</b>

**Notes and Assumptions:**

- 1) Assumes equipment usage of 12 days, as follows:
  - 4 days background
  - 3 days step-drawdown
  - 3 days constant rate
  - 1 day recovery
  - 1 day return shipping
- 2) Assumes ten transducers will be used.
- 3) Prices from Instrumentation Northwest and In-Situ do not include transducer extension cables that may be necessary or shipping charges.
- 4) Prices from Instrumentation Northwest do not include a field computer or direct labor necessary to program the data loggers. Field computer charges would be approximately \$200.00 and direct labor charges would be an additional 15 hours.



# EDWARD O. WATTS, P.E., P.C.

SUITE 220 • 1331 NORTH FOREST ROAD • BUFFALO, NEW YORK 14221  
(716) 688-4827 FAX: (716) 688-4844



November 27, 1995

Anne Marie McManus  
Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, New York 14217

**Re: Cost Proposal; Revised Estimate  
BB&S Site Remedial Investigation/Feasibility Study  
Sampling and Surveying Services**

Dear Ms. McManus:

Edward O. Watts, P.E., P.C. (EOW) is pleased to submit the following revised cost proposal to perform sampling and surveying services at the BB&S Site in Speonke, Long Island, New York. This revised proposal is in response to your letter request for proposal (RFP) of October 31, 1995 and your subsequent comments of November 22, 1995 and is presented in the following sections: Scope of Work, Technical Assumptions, Key Personnel, Firm Experience and Capabilities, Schedule, and Cost and Terms.

## **SCOPE OF WORK**

This scope of work follows the program description outlined in the RFP, a copy of which is included in this package.

### **A. Soil Sampling**

Surface soil sampling can be completed in one day by one technician, or may be carried out during down time from water sampling or split-spoon sampling, provided down time is forecasted to be a duration of one hour or greater. Sampling will be accomplished with hand tools (i.e. stainless steel trowels, etc.) from 0 to 3 inches in depth.

### **B. Split-Spoon Sampling**

Six borings to a depth of 40 feet may take three 8-hour days in winter weather for a total of two borings per day. These may be non-consecutive days if required by Malcolm Pirnie (MP) to allow the most efficient use of equipment. A total of 48 samples, plus necessary QC, will be sent to the MP designated laboratory.



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Ms. McManus  
November 28, 1995  
Page 2

#### **C. Hydropunch Groundwater Sampling**

Six Hydropunch locations will be advanced by a MP subcontractor. Three filtered and three unfiltered samples will be required at each location for a total of 36 groundwater samples. These samples, plus necessary QC, will be collected with disposable HDPE bailers and sent to the MP designated laboratory.

#### **D. Monitoring Well Sampling**

Two groundwater samples will be collected, one filtered, the other unfiltered, from each of 22 monitoring wells at the 10-acre site. Two additional wells will be sampled for a total of 48 groundwater samples, plus necessary QC. Samples will be sent to the MP designated laboratory.

#### **E. Surveying**

The piezometer and monitoring wells will be surveyed by a subcontracted New York State licensed surveyor for elevation and location to within 0.01 feet based on a USGS datum and will be tied into the New York State plane coordinate system.

#### **F. Health and Safety Plan (HASP)**

A fully detailed HASP will be prepared by EOW for sampling and surveying personnel, using the MP HASP for background information.

### **TECHNICAL ASSUMPTIONS**

1. MP will contract with analytical laboratory. EOW will conduct and coordinate sampling including collection equipment, chain-of-custody, and shipping. Laboratory will provide sample containers.
2. Soil borings may take place over 3 non-consecutive days. EOW will supervise drilling.
3. Hydropunch groundwater sampling will take place over three days by a subcontractor to MP. EOW will supervise the Hydropunch activities.
4. Monitoring wells average 50 feet deep and provide continuous recharge. Three wells can be purged and sampled by one technician in one day. Disposable HDPE bailers will be provided by EOW.

5. EOW will subcontract out for surveying services, but will provide office oversight and field assistance in locating wells and piezometers. Surveyor will adopt EOW's HASP. Ground control for aerial photography of 18 acres is included in the cost estimate. Existing features will be used for control points and the surveyors will not have to set targets at the site.
6. Level D PPE will be sufficient for all on-site personnel.
7. Equipment storage trailer will not be available on site.

### **SCHEDULE**

The sampling program is anticipated take a maximum of 4 weeks with one technician. This program may be shortened by providing a larger team (i.e. 2 technicians/scientists) or by working weekends for some sampling activities. The surveying program will take approximately four consecutive days, including travel time, and can be completed during sampling activities.

### **KEY PERSONNEL**

The following personnel are proposed to form the EOW sampling and oversight team.

Edward O. Watts  
Virginia Ursitti Wolfanger  
Justin Kellogg, Env. Scientist  
Jeffrey Dyber, Chem. Engineer

Principal in-charge  
Project Manager/H&S Officer  
On Site Coordinator/Field Sampler  
Project Engineer/Field Sampler

### **FIRM EXPERIENCE & CAPABILITIES**

The team members at EOW have accumulated field experience in various sample collection methods including split-spoon sampling, manual soil sampling, and groundwater sampling from monitoring wells. Ms. Wolfanger has prepared numerous field sampling plans for the NYSDOT and NYSDEC over the past five years, as well as coordinated numerous field projects for NYSDOT detailed site investigations and performed field sampling. Mr. Kellogg and Mr. Dyber each have field sampling experience at detailed site investigations over the last one or two years. All team members are 40-hour OSHA trained with appropriate refresher updates.

Ms. McManus  
November 28, 1995  
Page 4

**COST & TERMS**

The all inclusive cost for the proposed **1st round sampling** is . . . . . **\$28,956.55** including **\$6,650.00 in subcontracted surveying costs**. The attached spreadsheet itemizes costs as determined according to our NYSDEC Standby Contract.

The all inclusive cost for the proposed **2nd round sampling** is . . . . . **\$10,848.38**.

The unit cost for upgrade of PPE to **Level C** is an **additional \$16.00 per man-day** over the Level D price.

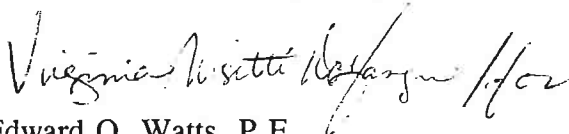
We have two \$1,000,000 professional liability insurance policies to cover errors and omissions for civil engineering and environmental services. All work will be performed under the direction of an experienced environmental professional supervised by a licensed, registered, professional engineer.

The prices and terms in this proposal reflect NYSDEC Standby Contract rates. If the above conditions are acceptable to you, please indicate your acceptance by returning a signed copy of this proposal.

We appreciate the opportunity to present this proposal and look forward to working with you on this project. Should questions arise upon review of the above, or if additional information is required, please contact Virginia Ursitti Wolfanger or me at (716) 688-4827.

Sincerely,

EDWARD O. WATTS, P.E., P.C.

  
Edward O. Watts, P.E.  
President

Ms. McManus  
November 28, 1995  
Page 5

### PROPOSAL ACCEPTANCE FORM

The above-referenced scope of services, technical assumptions, schedule and cost and terms for the sampling and surveying services at the BB&S Site RI/FS is acceptable.

Agreed to and accepted this \_\_\_\_\_ day of \_\_\_\_\_ 1995.

Signed: \_\_\_\_\_

Name: \_\_\_\_\_  
(please print)

Title: \_\_\_\_\_

# LABOR

Name	Title	NSPE	Rate	Hours	Direct Cost	Indirect Cost	Fixed Fee	Total Cost
Edward O. Watts, PE	Officer	IX	49.04	4	\$196.16	\$209.89	\$60.91	\$466.96
Virginia Ursitti Wolfanger	Senior Environmental Scientist	IV	18.27	50	\$913.50	\$977.45	\$283.64	\$2,174.59
Justin Kellogg	Environmental Scientist	II	14.75	228	\$3,363.00	\$3,598.41	\$1,044.21	\$8,005.62
Jeffrey Dyber	Engineer	II	14.25	40	\$570.00	\$609.90	\$176.99	\$1,356.89
<b>Total Labor</b>					<b>\$5,042.66</b>	<b>\$5,395.65</b>	<b>\$1,565.75</b>	<b>\$12,004.05</b>

# NON-SALARY DIRECT EXPENSES

Item	Units	Number	Cost per Unit	Total Cost
Copying (HASP)	page	3750	\$0.04	\$150.00
Per Diem	day	16	\$151.00	\$2,416.00
Vehicle Rental	week	4	\$280.00	\$1,120.00
HyDAC (cond., temp., pH)	week	3	\$100.00	\$300.00
Solinst (water level)	week	3	\$75.00	\$225.00
Turbidity Meter	week	3	\$65.00	\$195.00
Submersible pumps (3)	week	3	\$800.00	\$2,400.00
Hose	feet	400	\$1.19	\$476.00
Level D PPE*	man-day	18	\$14.00	\$252.00
Misc. Sampling Equipment	day	18	\$50.00	\$900.00
Ice				
Tape/Labels				
Coolers				
Decon Materials				
Teflon Tubing				
Shipping	day	18	\$75.00	\$1,350.00
Disposable Polyethylene Bailers	bailer	42	\$8.00	\$336.00
Peristaltic Pump	week	2	\$85.00	\$170.00
Filter	each	1	\$12.50	\$12.50
<b>Total DNSCs</b>				<b>\$10,302.50</b>

# TOTAL COST FOR SAMPLING PROGRAM (1st Round MW)

\*Additional charge per man-day for Level C PPE is \$16.00

**\$22,306.55**

# TOTAL COST FOR SURVEYING SUBCONTRACTOR

**\$6,650.00**

# LABOR

Name	Title	NSPE	Rate	Hours	Direct Cost	Indirect Cost	Fixed Fee	Total Cost
Edward O. Watts, PE	Officer	IX	49.04	2	\$98.08	\$104.95	\$30.45	\$233.48
Virginia Ursitti Wolfanger	Senior Environmental Scientist	IV	18.27	12	\$219.24	\$234.59	\$68.07	\$521.90
Justin Kellogg	Environmental Scientist	II	14.75	114	\$1,681.50	\$1,799.21	\$522.11	\$4,002.81
Jeffrey Dyber	Engineer	II	14.25	4	\$57.00	\$60.99	\$17.70	\$135.69
<b>Total Labor</b>					<b>\$2,055.82</b>	<b>\$2,199.73</b>	<b>\$638.33</b>	<b>\$4,893.88</b>

# NON-SALARY DIRECT EXPENSES

Item	Units	Number	Cost per	Total Cost
Per Diem	day	8	\$151.00	\$1,208.00
Vehicle Rental	week	2	\$280.00	\$560.00
HyDAC (cond., temp., pH)	week	2	\$100.00	\$200.00
Solinst (water level)	week	2	\$75.00	\$150.00
Turbidity Meter	week	2	\$65.00	\$130.00
Submersible pumps (3)	week	2	\$800.00	\$1,600.00
Hose	feet	400	\$1.19	\$476.00
Level D PPE*	man-day	8	\$14.00	\$112.00
Misc. Sampling Equipment	day	8	\$50.00	\$400.00
Ice				
Tape/Labels				
Coolers				
Decon Materials				
Teflon Tubing				
Shipping	day	8	\$75.00	\$600.00
Disposable Polyethylene Bailers	bailer	42	\$8.00	\$336.00
Peristaltic Pump	week	2	\$85.00	\$170.00
Filter	each	1	\$12.50	\$12.50
<b>Total DNSCs</b>				<b>\$5,954.50</b>

# TOTAL COST FOR SAMPLING PROGRAM (2nd Round MW)

\*Additional cost per man-day for Level C PPE is \$16.00.

**\$10,848.38**



## **Contract Drilling and Testing**

1951-1 Hamburg Turnpike  
Buffalo, NY 14218

55 Oliver Street  
Cohoes, New York 12047

P.O. Box 416 • 208 Le Fevre Road  
Stockertown, PA 18083

Phone: (716) 821-5911  
Fax: (716) 821-0163

Phone: (518) 238-1145  
Fax: (518) 238-1249

Phone: (610) 746-2670  
Fax: (610) 746-2669

**TOLL FREE: 1-800-821-5911**

November 6, 1995

Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, New York 14217

Attention: Judith Vangalio  
828-1300 / Fax: 828-0431

Reference: **BB&S Site Remedial Investigation Study  
Speonke, Long Island, New York  
Proposal No. ALD-1041**

Dear Judith,

SJB SERVICES, INC. is pleased to present our proposal for the BB&S Site in Speonke, Long Island, New York.

It is our understanding that the scope of work will include six (6) soil borings sampled at 5 foot intervals to 40 feet each and three (3) soil borings with hydropunch sampling to 40-100 feet each. Decon will occur between locations and all liquids and auger cuttings will be containerized on site in 55 gallon drums. Upon borehole completion all locations will be tremie grouted to grade. Completion of the above scope will include use of a truck mounted drill rig, two man crew with all required OSHA training and medical monitoring. SJB Services will accept and comply with the existing site specific health and safety plan developed by Malcolm Pirnie, Inc.

Our costs to provide these services were prepared with Level "D" unit rate costs as per our New York State Superfund Sites Blanket Contract established with Malcolm Pirnie, Inc. If site health and safety monitoring requires increased levels of personal protection, the unit rates included with our blanket contract will be utilized.



***"QUALITY & SERVICE THE WAY IT USED TO BE"***





Malcolm Pirnie, Inc.

November 6, 1995

Page -2-

Please sign below as your formal acceptance / authorization to proceed with this work.

We appreciate the opportunity to submit our proposal and we look forward to working with your firm on this project. If you should have any questions or wish to discuss our proposal further, please do not hesitate to call our office at any time.

Sincerely,

**SJB SERVICES, INC.**



Joseph L. Genovese

Drilling Services Coordinator

cla/Attachment

PROPOSAL ACCEPTED BY:

---

DATE ACCEPTED:

---

**SJB SERVICES - COST SUMMARY**  
**BB&S SITE REMEDIAL INVESTIGATION/FEASIBILITY STUDY**  
**SPEONKE, LONG ISLAND, NEW YORK**

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT COST	ESTIMATED TOTAL
1.	Mobilization/ Demobilization	LUMP SUM	\$500.00 LS	\$ 500.00
2.	SOIL BORINGS:			
	a) 4-1/4" ID Auger 6 at 40' Each	240 Feet	\$ 10.00/Ft.	\$2,400.00
	b) 2" Split Spoon	48 Each	\$ 6.00/Ea.	\$ 288.00
	c) Borehole Grout	240 Feet	\$ 6.00/Ft.	\$1,440.00
3.	HYDROPUNCH PROBES:			
	a) 4-1/4" ID Auger 3 at 40' Each	120 Feet	\$ 10.00/Ft.	\$1,200.00
	b) Hydropunch Samples	3 Each	\$130.00/Ea.	\$ 390.00
	c) Borehole Grout	120 Feet	\$ 6.00/Ft.	\$ 720.00
4.	a) Decon Pad	LUMP SUM	\$500.00 LS	\$ 500.00
	b) Decon	6 Hours	\$130.00/Hr.	\$ 780.00
	c) Standby	UNKNOWN	\$130.00/Hr.	UNKNOWN
	d) 55-Gallon Drums	12 Each	\$ 35.00/Ea.	\$ 420.00
	e) Labor for Liquid and Cutting Containment in 55 Gallon Drums	2 Hours	\$140.00/Hr.	\$ 280.00

**ESTIMATED TOTAL COST = \$ 8,918.00**

**INTEROFFICE  
MEMORANDUM**

---

To: Anne Marie McManus  
From: Chuck Trione  
Date: December 18, 1995  
Re: BB&S Treated Lumber

At the request of Ms. Judy Vangalio, I am providing cost estimates from two vendors that rent the data loggers and pressure transducers necessary to perform the aquifer testing at the above referenced site. These are only two vendors that I am familiar with that provide the type of equipment that I require.

The cost estimate from the first vendor, Instrumentation Northwest, is \$4560. This estimate does not include any transducer extension cables that may be necessary or shipping fees. The transducer extension cables may be an additional cost of \$90 and the shipping fees may be an additional cost of \$500. In addition, the INW data logger must be programmed in the field using a laptop computer. The data loggers need to be reprogrammed at the beginning and end of each test (i.e., background, step-drawdown test, constant rate test, and recovery test). Obviously, this will also add to the cost, both in terms of computer usage and direct labor.

The cost estimate from the second vendor, In-Situ, Inc., is \$6210. Similarly, this estimate does not include transducer extension cables (though the basic In-Situ transducer cables are 150 feet longer than INW's) or shipping fees. The extension cables may be an additional cost \$140 and the shipping fees may be an additional \$400.

My preference is to use the In-Situ data logger and transducers since these are the instruments that Malcolm Pirnie normally uses. If I am to be responsible for the conduct of the aquifer tests, I want to ensure that I am comfortable with the instruments that are being used to collect the data. Therefore, if the equipment selection is based upon the bottom line alone, I would need some additional time prior to the aquifer tests to reacquaint myself with the INW instruments.

If you have any questions or need more information, please feel free to call me.



## **Contract Drilling and Testing**

1951-1 Hamburg Turnpike  
Buffalo, NY 14218

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P.O. Box 416 • 208 Le Fevre Road  
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Fax: (716) 821-0163

Phone: (518) 238-1145  
Fax: (518) 238-1249

Phone: (610) 746-2670  
Fax: (610) 746-2669

**TOLL FREE: 1-800-821-5911**

November 10, 1995

Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Orchard Park, New York 14217

Attention: Judith Vangalio  
828-1300 / Fax: 828-0431

Reference: **BB&S Site Remedial Investigation Study**  
**Speonke, Long Island, New York**  
**Proposal No. ALD-1041 (Revised)**

Dear Judith,

SJB SERVICES, INC. is pleased to present our **revised** proposal for the BB&S Site in Speonke, Long Island, New York.

It is our understanding that the scope of work will include six (6) soil borings sampled at 5 foot intervals to 40 feet each and three (3) soil borings with hydropunch sampling to 40-100 feet each. Decon will occur between locations and all liquids and auger cuttings will be containerized on site in 55 gallon drums. Upon borehole completion all locations will be tremie grouted to grade. Completion of the above scope will include use of a truck mounted drill rig, two man crew with all required OSHA training and medical monitoring. SJB Services will accept and comply with the existing site specific health and safety plan developed by Malcolm Pirnie, Inc.

Our costs to provide these services were prepared with Level "D" unit rate costs as per our New York State Superfund Sites Blanket Contract established with Malcolm Pirnie, Inc. If site health and safety monitoring requires increased levels of personal protection, the unit rates included with our blanket contract will be utilized.



**"QUALITY & SERVICE THE WAY IT USED TO BE"**

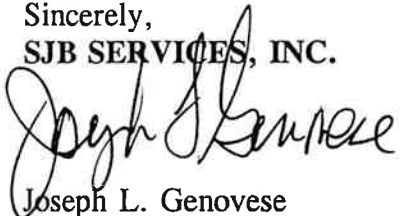


Malcolm Pirnie, Inc.  
November 10, 1995  
Page -2-

Please sign below as your formal acceptance / authorization to proceed with this work.

We appreciate the opportunity to submit our proposal and we look forward to working with your firm on this project. If you should have any questions or wish to discuss our proposal further, please do not hesitate to call our office at any time.

Sincerely,  
**SJB SERVICES, INC.**



Joseph L. Genovese  
Drilling Services Coordinator

cla/Attachment

PROPOSAL ACCEPTED BY:

---

DATE ACCEPTED:

---

**SJB SERVICES - COST SUMMARY (Revised)**  
**BB&S SITE REMEDIAL INVESTIGATION/FEASIBILITY STUDY**  
**SPEONKE, LONG ISLAND, NEW YORK**

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT COST	ESTIMATED TOTAL
1.	Mobilization/ Demobilization	LUMP SUM	\$500.00 LS	\$ 500.00
2.	SOIL BORINGS:			
	a) 4-1/4" ID Auger 6 at 40' Each	240 Feet	\$ 10.00/Ft.	\$2,400.00
	b) 2" Split Spoon	48 Each	\$ 6.00/Ea.	\$ 288.00
	c) Borehole Grout	240 Feet	\$ 6.00/Ft.	\$1,440.00
3.	HYDROPUNCH PROBES:			
	a) 4-1/4" ID Auger 3 at 40' Each	120 Feet	\$ 10.00/Ft.	\$1,200.00
	b) Hydropunch Samples	3 Each	\$130.00/Ea.	\$ 390.00
	c) Borehole Grout	120 Feet	\$ 6.00/Ft.	\$ 720.00
4.	a) Decon Pad	LUMP SUM	\$500.00 LS	\$ 500.00
	b) Decon	6 Hours	\$130.00/Hr.	\$ 780.00
	c) Standby	UNKNOWN	\$130.00/Hr.	UNKNOWN
	d) 55-Gallon Drums	12 Each	\$ 35.00/Ea.	\$ 420.00
	e) Labor for Liquid and Cutting Containment in 55 Gallon Drums	2 Hours	\$140.00/Hr.	\$ 280.00
5a.	Labor for Removal of Existing Protective Casing and Concrete Area	22 Each	\$130.00/Ea.	\$2,860.00

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT COST	ESTIMATED TOTAL
5b.	Installation of Protective Casing, Lock & Concrete Apron	22 Each	\$150.00/Ea.	\$3,300.00
6.	Well Development (Assume 1 Hr. at each Location)	22 Hours	\$130.00/Hr.	\$2,860.00
7.	Compressor	3 Days	\$200.00/Day	\$ 600.00

**ESTIMATED TOTAL COST = \$18,538.00**



## Contract Drilling and Testing

1951-1 Hamburg Turnpike  
Buffalo, NY 14218

Phone: (716) 821-5911  
Fax: (716) 821-0163

55 Oliver Street  
Cohoes, New York 12047

Phone: (518) 238-1145  
Fax: (518) 238-1249

P.O. Box 416 • 208 Le Fevre Road  
Stockertown, PA 18083

Phone: (610) 746-2670  
Fax: (610) 746-2669

**TOLL FREE: 1-800-821-5911**

November 14, 1995

Malcolm Pirnie, Inc.  
S-3515 Abbott Road  
Buffalo, New York 14219-0138

Attention: Judith Vangalio  
828-1300 / Fax: 828-0431

**Reference: Additional Information for BB&S Site**

Dear Judy,

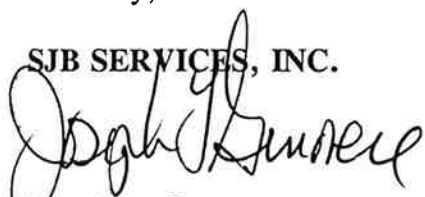
As per our telephone conversation of November 13, 1995, with reference to drilling services at the BB&S site. The following items are included with the costs provided:

- o Per Diem
- o Plywood/Poly Work Area
- o Locks
- o General Health and Safety Plan with reference to drilling safety (note: the site specific Health and Safety Plan prepared by others will be utilized).

If you should have any questions, please do not hesitate to call our office at any time.

Sincerely,

**SJB SERVICES, INC.**

  
Joseph L. Genovese  
Drilling Services Coordinator



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- Civil / Transportation Engineering



C:\user\malcom.vuw

VUW/mew  
Enclosure

EDWARD O. WATTS, P.E., P.C.  
*Virginia Ursitti Wolfanger, QEP*  
Senior Environmental Scientist

Very truly yours,

Thank you for your consideration.

We anticipate the need to collect no more than three samples during the first round sampling program and one sample during the second round. Therefore, the total cost increase as itemized in the enclosed is \$650.00.

The enclosed two-page spreadsheet reflects our proposed cost increase associated with the addition of personal air monitoring to the work plan. The direct non-salary cost of sampling for inorganic arsenic is approximately \$150.00 per sample. This figure includes the air sample analysis, trip blank and shipping of samples and equipment to Travelers Engineers Laboratory in Connecticut.

Dear Ms. Vangalio:

RE: State Superfund Standby Contract  
Work Assignment D002852-15  
BB&S Lumber RI/FS Work Plan

Attention: Judy Vangalio

Ann Marie McManus  
Malcolm Pirnie, Inc.  
P. O. Box 1938  
S3515 Abbott Road  
Buffalo, New York 14219

February 6, 1996



EDWARD O. WATTS, P.E., P.C.

SUITE 220 • 1331 NORTH FOREST ROAD • BUFFALO, NEW YORK 14221  
(716) 688-4827 FAX: (716) 688-4844

# LABOR

Name	Title	NSPE	Rate	Hours	Direct Cost	Indirect Cost	Fixed Fee	Total Cost
Edward O. Watts, PE	Officer	IX	49.04	2	\$98.08	\$104.95	\$30.45	\$233.48
Virginia Ursitti Wolfanger	Senior Environmental Scientist	IV	18.27	12	\$219.24	\$234.59	\$68.07	\$521.90
Justin Kellogg	Environmental Scientist	II	14.75	114	\$1,681.50	\$1,799.21	\$522.11	\$4,002.81
Jeffrey Dyber	Engineer	II	14.25	4	\$57.00	\$60.99	\$17.70	\$135.69
<b>Total Labor</b>					<b>\$2,055.82</b>	<b>\$2,199.73</b>	<b>\$638.33</b>	<b>\$4,893.88</b>

# NON-SALARY DIRECT EXPENSES

Item	Units	Number	Cost per	Total Cost
Per Diem	day	8	\$151.00	\$1,208.00
Vehicle Rental	week	2	\$280.00	\$560.00
HyDAC (cond., temp., pH)	week	2	\$100.00	\$200.00
Solinst (water level)	week	2	\$75.00	\$150.00
Turbidity Meter	week	2	\$65.00	\$130.00
Submersible pumps (3)	week	2	\$800.00	\$1,600.00
Hose	feet	400	\$1.19	\$476.00
Level D PPE*	man-day	8	\$14.00	\$112.00
Personal Air Sampling (includes shipping and blank)	sample	1	\$150.00	\$150.00
Misc. Sampling Equipment	day	8	\$50.00	\$400.00
Ice				
Tape/Labels				
Coolers				
Decon Materials				
Teflon Tubing				
Shipping	day	8	\$75.00	\$600.00
Disposable Polyethylene Bailers	bailer	42	\$8.00	\$336.00
Peristaltic Pump	week	2	\$85.00	\$170.00
Filter	each	1	\$12.50	\$12.50
<b>Total DNSCs</b>				<b>\$6,104.50</b>

# TOTAL COST FOR SAMPLING PROGRAM (2nd Round MW)

\*Additional cost per man-day for Level C PPE is \$16.00.

**\$10,998.38**

# LABOR

Name	Title	NSPE	Rate	Hours	Direct Cost	Indirect Cost	Fixed Fee	Total Cost
Edward O. Watts, PE	Officer	IX	49.04	4	\$196.16	\$209.89	\$60.91	\$466.96
Virginia Ursitti Wolfanger	Senior Environmental Scientist	IV	18.27	50	\$913.50	\$977.45	\$283.64	\$2,174.59
Justin Kellogg	Environmental Scientist	II	14.75	228	\$3,363.00	\$3,598.41	\$1,044.21	\$8,005.62
Jeffrey Dyber	Engineer	II	14.25	40	\$570.00	\$609.90	\$176.99	\$1,356.89
Total Labor					\$5,042.66	\$5,395.65	\$1,565.75	\$12,004.05

# NON-SALARY DIRECT EXPENSES

Item	Units	Number	Cost per Unit	Total Cost
Copying (HASP)	page	3750	\$0.04	\$150.00
Per Diem	day	16	\$151.00	\$2,416.00
Vehicle Rental	week	4	\$280.00	\$1,120.00
HYDAC (cond., temp., pH)	week	3	\$100.00	\$300.00
Solinst (water level)	week	3	\$75.00	\$225.00
Turbidity Meter	week	3	\$65.00	\$195.00
Submersible pumps (3)	week	3	\$800.00	\$2,400.00
Hose	feet	400	\$1.19	\$476.00
Level D PPE*	man-day	18	\$14.00	\$252.00
Personal Air Sampling (includes shipping and blanks)	sample	3	\$150.00	\$450.00
Misc. Sampling Equipment	day	18	\$50.00	\$900.00
Ice				
Tape/Labels				
Coolers				
Decon Materials				
Teflon Tubing				
Shipping	day	18	\$75.00	\$1,350.00
Disposable Polyethylene Baiters	baiter	42	\$8.00	\$336.00
Peristaltic Pump	week	2	\$85.00	\$170.00
Filter	each	1	\$12.50	\$12.50
Total DNSCs				\$10,752.50

# TOTAL COST FOR SAMPLING PROGRAM (1st Round MW)

\*Additional charge per man-day for Level C PPE is \$16.00

# TOTAL COST FOR SURVEYING SUBCONTRACTOR

\$22,756.55

\$6,650.00



**Contract  
Drilling  
and  
Testing**

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Phone: (716) 821-5911  
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Stockertown, PA 18083

Phone: (610) 746-2670  
Fax: (610) 746-2669

**TOLL FREE: 1-800-821-5911**

February 8, 1996

Malcolm Pirnie, Inc.  
S3515 Abbott Road  
Orchard Park, New York 14127

Attention: Judith VanGalio  
828-1300 / Fax: 828-0431

Reference: **Additional Unit Rate**  
**BB&S Site Remedial Investigation Study**  
**Speonke, Long Island, New York**

Dear Judith,

Pursuant to our telephone conversation today, the cost associated with Arsenic Air/Monitoring and Analysis will be invoiced at \$350.00 per day. We estimate this work to be completed in four (4) days. Actual billing will reflect field quantities and the unit rates quoted.

If you should have any questions, please do not hesitate to call our office at any time.

Sincerely,

**SJB SERVICES, INC.**

*Joseph L. Genovese/cia*

Joseph L. Genovese  
Drilling Services Coordinator

cla



**"QUALITY & SERVICE THE WAY IT USED TO BE"**

