PROPOSED WORK PLAN
VOLUNTARY CLEANUP PROGRAM INVESTIGATION

575 EAST MILL STREET
CITY OF LITTLE FALLS
HERKIMER COUNTY, NEW YORK
SITE NO. V00223-6

JUNE 1999
Revised: August 1999

Prepared For:

THE NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
REGION 6
ATTN: DARREL SWEREDOSKI, P.E.
REGIONAL HAZARDOUS WASTE REMEDIATION ENGINEER

Prepared By:

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1.0 INTRODUCTION AND BACKGROUND

Note: The original proposed work plan was submitted on June 17, 1999. A review letter was received from Philip G. Waite dated July 19, 1999. This revised work plan addresses Mr. Waite's comments and suggestions.

1.1 General

United Dominion Industries, Inc. (UDI) is the owner of record of the subject property. The site is approximately 6.5 acres of land located at 575 E. Mill St. in the city of Little Falls, NY. UDI contracted to sell its facility, known previously as Cherry-Burrell, to Feldmeier Equipment, Inc. (FEI). FEI purchased the business and selected non-real estate assets, and began to operate the facility in 1998. Transfer of real estate was contingent upon clarification of various environmental questions raised during environmental site assessments by consultants for both parties. Both parties agreed to contract with NYSDEC as volunteers under a "Voluntary Cleanup Program Investigation" agreement.

Buck Engineering has contracted with the volunteers to present the initial application, prepare a work plan, and execute the investigation on their behalf. The site was approved for participation in the Voluntary Cleanup Program (VCP) on 4-2-99 by correspondence from NYSDEC Chief of State Superfund and Voluntary Cleanup Bureau, Dale Desnoyers, Esq. addressed to UDI's legal counsel, Thomas West, Esq. of LeBoeuf, Lamb, Greene & MacRae, LLP.

A preliminary meeting was held at the site on 4-22-99 between the volunteers, the consultant, and Philip Waite, P.E., the NYSDEC Project Engineer. Mr. Waite reviewed existing information at the site and clarified NYSDEC's work plan requirements in correspondence to the consultant of 5-19-99. This proposed work plan is submitted on behalf of UDI and FEI, the volunteers, and is intended to become a part of the final VCP Agreement between the parties upon acceptance by the Division of Environmental Remediation.

1.2 Prior Site Activities

The 575 E. Mill St. site in Little Falls has been used for a variety of industrial purposes since at least the middle 1800's. A tannery and a manufactured gas facility are apparent on maps from the late 1800's. A metal tank manufacturing operation has been conducted at 575 E. Mill St. since at least 1948. The operation was known as the Cherry-Burrell site which eventually came under UDI ownership in the 1970's. UDI manufactured large stainless steel vessels for process equipment using shearing, presswork, rolling mill, welding, electro-polishing, and similar processes. In 1998 UDI sold its Little Falls inventory and equipment to Feldmeier Equipment of Syracuse, NY. Feldmeier Equipment is engaged in similar process equipment manufacturing at other sites in the United States. The Little Falls location structure(s) comprise 125,000 ft^2 of manufacturing and office space on a site of approximately 6.5 acres.

1.3 Surrounding Land Uses

The surrounding land use is generally industrial with some commercial activities. A listing of adjoining property owners and uses follows. The names of the owners are also shown on the site map in Section 9.0 of this work plan.

Current Owner	Current Use
R & G Machine and Tool Corp. 375 S. Ann St., Little Falls, NY 13365	Machine Shop (milling, grinding, welding, etc.)
George Lumber and Building Materials, Inc. 40 McKinley Ave., Dolgeville, NY 13329	Commercial
Burrows Paper Corp. 545 W. Main St., Little Falls, NY 13365	Pulp and Paper Mill
Cale-Glens Falls Inc. P.O. Box 29, Herkimer, NY 13350	Castle Trucking-Warehouse
Consolidated Rail Corp. P.O. Box 8499, Philadelphia, PA 19101	Railway
Vincent Manufacturing Co. 560 E. Mill St., Little Falls, NY 13365	Manufacturer of Foam Products
Charles III and Anita Musgrave 4200 Rock Canyon Rd., Edmund, OK 73007	Sunbelt Industries (retail distributor of abrasives)

1.4 Prior Site Investigations

Environmental site assessments have been performed at this site for various parties. Copies of the following site assessment reports were provided to NYSDEC with the initial VCP application:

Buck Engineering, Phase I Environmental Site Assessment: Waukesha Cherry-Burrell Property, 3/98

Delta Environmental Consultants, Inc., Phase I Environmental Assessment: Former Cherry-Burrell Facility, 11/97

Delta Environmental Consultants, Inc., Phase II Environmental Assessment: Former Cherry-Burrell Facility, 6/98

2.0 PROJECT OBJECTIVE

The overall objective of this proposed work plan is to provide sufficient information for NYSDEC to determine the nature and extent of any contamination at the site, the potential for exposure pathways, and the potential for off-site migration.

In order to achieve the overall objective, the following specific objectives have been identified:

1. Characterize the level of metals and PAH's in ambient soils in the area.
2. Characterize the groundwater quality underlying the site.
3. Determine if soil and/or groundwater quality has been impacted by the previous manufactured gas operations at the western portion of the site.
4. Determine if soil and/or groundwater quality has been impacted by the previous tannery operations at the eastern portion of the site.
5. Determine if soil and/or groundwater quality has been impacted by the previous petroleum bulk storage facility north of the manufacturing facility.
6. Determine if soil and/or groundwater quality has been impacted by the previous electroplating operations within the older tank fabrication portion of the manufacturing facility.
7. Identify exposure routes and transport mechanisms for any contaminants identified in the investigation.

Note: The Investigative Strategy/Sampling and Analytical Plan refer to the specific objectives outlined above.

3.0 INVESTIGATION ORGANIZATION

3.1 General

The current owner of the property, UDI, has retained Buck Engineering (BE) to prepare the work plan and to conduct the site investigation. Correspondence relating to the work plan should be directed to the Project Manager:

John H. Buck, P.E.
Buck Engineering
3821 Buck Drive
Cortland, NY 13045-5150

Telephone: 607-753-3403
FAX: 607-753-3415
E-Mail: Bucklab@clarityconnect.com

3.2 Investigation Team

The investigation team is comprised of the following people. The attached Statement of Qualifications includes resumes for these individuals.

Project Manager	John H. Buck, P.E.
Field Engineer	Wayne C. Matteson, P.E.
Industrial Hygienist	Eric H. Monsen
Quality Assurance/Control (QA/QC) Officer	Barbara L. Houskamp
Health and Safety Officer (HASO)	Eric H. Monsen

4.0 INVESTIGATIVE STRATEGY/SAMPLING AND ANALYTICAL PLAN

Each of the proposed sampling positions described below is indicated on the site map along with shaded areas which depict the locations of the prior tannery and manufactured gas facilities. Sample numbers (#1-7) are keyed to the objective numbers below.

4.1 Soil Background Levels (Objective 1)

The Delta Phase 2 investigation identified PAH's and metals at some locations on the site. To determine if these levels are significantly different from ambient levels in the area, it is proposed that three control samples be obtained. Each sample would be taken from a shallow hand excavation (0-6"). The proposed sampling locations are; 1) east of the boiler building along the central portion of the east property line, 2) on adjoining property west of the site; and, 3) north of the old tannery site on the south side of East Mill Street. All samples would be analyzed for TAL metals and TCL SVOA's as indicated on the Analytical Summary Table (Table 1) in Section 8.0 of this work plan.

4.2 Groundwater Quality (Objective 2)

The Delta Phase 2 investigation included some groundwater sampling, but the data were very limited due in part to limitations of the sampling method (temporary Geoprobe points) and the absence of water bearing formations. It is proposed that five 2" PVC monitoring wells be installed to allow sampling and assessment of the site groundwater. One of the wells ***is*** proposed to assess upgradient water quality, three wells are along the southern perimeter of the manufacturing facility to assess downgradient water quality and one well is downgradient of the AST location. In the event that water quality information upgradient of the old tannery site is needed, the well south of the AST's may provide that information. Groundwater monitoring wells will be advanced to a depth of up to 5 feet below the apparent groundwater depth encountered at each location; however, there are no plans to drill into rock at any location. Depending upon conditions encountered at each well location, screens will be placed to account for variations in the groundwater level. In no case will well screens longer than 10 feet or shorter than 3 feet be used in the construction of the any groundwater monitoring well. The placements are shown on the attached site map and are intended to also aid in objectives 3-6. The five groundwater samples would be analyzed for TAL metals, TCL VOA's, and TCL SVOA's.

4.3 Gas Manufacturing Site (Objective 3)

A coal gasification facility was indicated at the western portion of the site on Sanborn maps dated 1884, 1891, 1897, 1900, 1906 and 1911. Facilities that manufactured methane and other low-molecular weight gases from coal for lighting and heating purposes typically produced tar-like wastes that were often disposed of on or near the point of manufacture. These wastes included abundant amounts of polynuclear aromatic hydrocarbons (PAH's) and volatile aromatic compounds. The Delta Phase 2 investigation identified various levels of PAH's in soil from the general vicinity where this plant was located at the turn of the century. It is proposed that three borings be obtained to confirm the Delta findings. The borings would be advanced to bedrock. Continuous split spoons would be obtained for visual classification and PID screening. The split spoon soil samples with the greatest odor and visual appearance of contamination would be obtained and analyzed for TCL SVOA's and TAL metals.

If there is no field indication of contamination, a sample from the first 0-2' would be selected. A VOA sample would be obtained from the bedrock interface or at the water table (if available).

4.4 Tannery Site (Objective 4)

A slaughterhouse and tannery operation was located at the eastern area of the site in the 19th century. The tannery structures appear to have been aligned with a surface stream (see para. 4.7), possibly for waste disposal purposes. None of the original structures from the original tannery operations remain; however, the existing unused 7-story structure was constructed near the end of tannery operations at the site. Much of the original tannery operations' footprint has been covered by construction of the easternmost portion of the current manufacturing building. Tannery operations typically included a "beam room", boiling vats, caustic solutions, and sometimes used chromium salt solutions for the actual tanning process. Some tanneries also used pesticides to prevent infestation of the stored hides. Although there have not been tannery operations at this site for approximately 100 years, three backhoe test pits are proposed in the general area of the tannery. Backhoe test pits will be excavated to bedrock, groundwater, or to a depth of ten feet, whichever is encountered first. A sidewall grab sample of soil would be obtained from visually contaminated portion(s) of each pit, if any, for laboratory analysis. If there are no apparent contaminated portions of the test pit, a grab sample of soil will be obtained from the bottom of the pit using the backhoe. If additional sources of contamination are identified in any test pit, additional grab samples will be obtained for laboratory analysis from those sources of contamination. The backhoe bucket will be decontaminated between each test pit in accordance with the decontamination procedure outlined in Appendix B. The testpit soils would be visually characterized and the sample obtained would be analyzed for TCL VOA's, TCL SVOA's, TAL metals, and TCL pesticides. There is no intent to sample groundwater (if encountered) from the two western test pits due to the monitoring well location near the tannery site. If groundwater is encountered in the eastern test pit, an additional sample would be obtained to be analyzed for the same parameters as the test pit soils.

4.5 Petroleum AST's (Objective 5)

Two existing above ground storage tanks (AST's) containing #2 fuel oil are located on the site. These AST's previously contained #4 or #6 fuel oil. A NYSDEC spill event was registered and closed in 1989 after completion of a soil remediation project. The Delta Phase 2 site assessment identified PAH's in the soil. It is not clear whether the PAH's originated from fuel oil or possibly from coal-gasification residue from the previous manufacturing facility. It is proposed that two backhoe test pits be excavated at locations downgradient from the AST's. The test pits will be excavated to bedrock, groundwater, or to a depth of ten feet, whichever is encountered first. A sidewall grab sample of soil would be obtained from visually contaminated portion(s) of each pit, if any, for laboratory analysis. If there are no apparent contaminated portions of the test pit, a grab sample of soil will be obtained from the bottom of the pit using the backhoe. If additional sources of contamination are identified in any test pit, additional grab samples will be obtained for laboratory analysis from those sources of contamination. The soils would be visually characterized and one grab sample from each testpit would be obtained for TCL VOA, TCL SVOA and TAL metals analysis.

4.6 Electropolishing Wastes (Objective 6)

Electropolishing operations are a form of reverse electroplating which remove metal from the object rather than adding metal. The process fluid, therefore, includes relatively high levels of the metal that was electropolished. Since the products have typically been stainless steel, the process waste fluids would be expected to include chromium and nickel as constituents. Although it seems clear that these waste fluids are handled properly in the current operations, prior investigators have raised questions about prior disposal methods. The Delta Phase 2 site assessment report included language referring to the "...existing fuel oil underground collection pit associated with the electropolishing process." In recent weeks the current operator, Feldmeier Equipment, has provided information that is accurate to the best of their knowledge. Feldmeier believes that the process was initiated in the 1970's on the second floor of the facility. All of this waste was shipped off-site as hazardous due to the high pH characteristic. In approximately 1990 the process was re-located to its current location at which time the sub-floor collection vessels were installed. The liquids are pumped from these collection vessels to a nearby treatment system that precipitates the metals by raising the pH (sludge is shipped as hazardous waste) and the wastewater is then neutralized and discharged to the municipal sewer under an industrial pre-treatment permit. No one from Buck Engineering, Feldmeier Equipment, or United Dominion knows the origin of the term "fuel oil" used in the Delta report. Mr. Stephen Zbur, Senior Consultant at Delta, indicated that the term "fuel oil" should have been moved up in the sentence and placed between "existing" and "ASTs"; therefore, the sentence should have read:

> "....(i.e., former gasometer pits, existing fuel oil ASTs or existing underground collection pit associated with the electropolishing process)."

It is proposed that a hole be bored through the concrete floor south of the electropolishing operation and south of the treatment system (two boring locations). A soil sample would be obtained from the top 6" of soil and the auger advanced to refusal. If water or moist soil is encountered, a second sample from each location would be obtained. The samples would be analyzed for TAL metals. If water samples are encountered, they would be analyzed from a 24-hour settled and decanted sample container to remove transient turbidity. If elevated PID readings are encountered, the samples will be analyzed for the presence of TCL SVOA's as well as TAL Metals.

4.7 Exposure Pathways (Objective 7)

Exposure pathways will be further investigated and identified in the investigation. Separation distances to municipal water supplies, schools, residences, and parks will be mapped and identified. Municipal storm, water, and sewer lines will be identified and estimated positions shown on a site plan. A prominent feature on the site is a surface stream/storm drain that passed beneath the plant in a stone-walled conduit (tunnel) to the Mohawk River on the south border of the site. Although the major municipal storm flows have been diverted at the east end of the site, the tunnel under the plant appears to be connected to some municipal street drains and minor flow continues to be evident. The tunnel will be visually examined for presence of discharge pipes that could emanate from the facility. If suspicious outfalls are observed, smoke or dye testing will be used in an attempt to locate origins within the plant. Assuming that the tunnel can be traversed to the north end of the manufacturing building, and that there is sufficient flow, two water samples will be obtained and analyzed for TAL metals, TCL VOA's, and TCL SVOA's. If little or no flow is discovered in the tunnel, sediment samples will be taken and analyzed for the same parameters. One sample would be obtained at the outfall to the Mohawk River. The second sample would be taken from within the tunnel (or a catch basin if the tunnel is inaccessible) near East Mill Street. The estimated position of the tunnel along with an estimate of the proposed sampling locations is shown on the site map.

5.0 *QUALITY CONTROL/QUALITY ASSURANCE PROVISIONS*

5.1 Data Objective and Usage

The overall data objective is to provide data of sufficient quality and defensibility to meet the objectives as defined in para. 2.3.

5.2 Analytical Laboratory and Data Quality Level

Analytical data can be generally categorized in four levels as follows:

Field screening methods (level 1) - These methods are used to aid field personnel in making rapid decisions on the site and include pH, conductivity, portable photoionization detector, and similar methods. QA/QC is limited to notebook documentation of field calibration.

Field analytical methods (level 2) - This level of analysis can only be achieved by use of a portable laboratory facility approved by NYSDOH under the ELAP program. Full regulatory analytical methods are used on-site by qualified and accredited laboratory personnel.

ELAP Laboratory methods (level 3) - This level of analysis is achieved by transporting samples from the investigation site to a NYSDOH ELAP approved laboratory. The laboratory uses EPA and ELAP approved methods,but QA/QC is limited to the laboratory's internal protocols and requirements of the ELAP program. The final submittal is typically Form 1's only or a minimal QA/QC submittal.

ELAP ASP/CLP Laboratory methods (level 4) - This level of analysis is achieved by transporting samples from the investigation site to a NYSDOH ELAP laboratory that has specific approval to analyze samples and prepare data packages under the NYSDEC ASP/CLP program. While the analytical methods are similar to normal EPA/ELAP methods, a full ASP Category B deliverable package is prepared which allows the analytical data to be validated by an outside party or assessed for usability by a Data Usability Summary Report (DUSR) assessment. This level of analysis is normally applied in cases where data may be used for litigation purposes or will be used in conjunction with an agreement with NYSDEC.

While field monitoring of excavation and boring activities is proposed using an H-Nu PID meter (Level 1), all formal analysis under this work plan is proposed to be at Level 4 (ASP/CLP) ASP Category B deliverables in conformance with the VCP guidelines established by NYSDEC.

The primary laboratory for this investigation would be Buck Environmental Laboratories, Inc. of Cortland, NY. This laboratory is accredited as NYSDOH ELAP Lab no. 10795 and holds approvals for ASP/CLP analysis. All samples will be delivered to the laboratory within 48 hours of sample collection.

5.3 Quality Assurance Objectives

The quality assurance objective is to assure that defensible sampling, sample custody, laboratory analyses, instrument control, data reduction, and final reporting strategies are used in the project in order to present data that are complete, representative, and comparable. In order to adequately assess project data quality, the project would include various quality control samples including:

- A **Trip Blank** would be analyzed for each sampling day to assure that samples for volatiles analysis have not been contaminated during transport to the laboratory.
- A **Rinsate Blank** would be used to assure that samples have not been contaminated by field sampling equipment such as bailers, Geoprobe tubing, split spoons, and augers.
- **Laboratory Method Blanks** would be used to assure that the samples have not been contaminated by laboratory fugitive contaminants, equipment, or reagents.
- A **Matrix Spike** would be analyzed to assess the degree to which the contaminant measurement was influenced by the particular sample matrix.
- A **Matrix Spike Duplicate Or Sample Duplicate** would be analyzed to assess the precision of the measurements.

5.4 Sampling Protocols

Sampling protocols have been adopted from a variety of references including NYSDEC TAGM 4007, EPA/640/P-87/001 OSWER Directive 9355 0-14 and EPA SW-846. In general, dedicated equipment would be used for each water sampling location. Soil sampling equipment, drilling tools and groundwater elevation equipment would be carefully decontaminated in the field between uses by a water/detergent wash, water rinse, and methanol rinse. Acetone would not be used for field decontamination purposes due to its presence on the TCL analyte list. Dedicated sampling equipment would be used to obtain groundwater samples from both the Geoprobe holes and monitoring wells, and to obtain soil samples. SOP's for the various sampling techniques are included in the appendix.

5.5 Sample Custody

Sample custody would be initiated in the field when the sample is taken by the field technician. The sampler would make permanent field notes which describe climatic conditions, personnel present, date, time, precise sample location, sample container and preservative used (if any). Field notes may be augmented by photographs under some circumstances. The sampler would relinquish custody of samples only to an authorized courier or to the destination laboratory. All sample custodians would record receipt and release of the sample by dated signature on the Chain-of Custody.

The laboratory would use in-house procedures for sample custody which assure that all sample containers are directly marked with a unique identifier and that sample custody at any point in time can be readily determined.

5.6 Documentation, Data Reduction and Reporting

Field activities would be summarized as they occur in a master project file at Buck Engineering. All field notes would be maintained for a period of at least three years for future reference. The project file would include all analytical results, correspondence, and reports generated during the project.

Analytical data reduction would be verified by laboratory supervisors and an internal data validation performed. The final report would be reviewed by the Project Manager and the Project QA/QC Officer for completeness and accuracy.

5.7 Data Validation - Data Usability Assessment

External data validation by a third party is not proposed for this work plan. All data would be validated by the analytical laboratory and a summary narrative outlining validation results would accompany the report.

The usability of the data would be assessed by the QA/QC officer and the project manager in general conformance with the NYSDEC Division of Environmental Remediation (DER) Data Usability Summary Report (DUSR) guidelines according to Guidance for the Development of Data Usability Summary Reports.

6.0 REPORTING

A final project report would be prepared for submission to NYSDEC at the conclusion of the activities described herein. The report would include, at a minimum, the following:

- methodologies for technical tasks completed
- laboratory analytical reports
- QA/QC documentation
- DUSR
- site plan showing actual sampling locations
- an isopotentiometric groundwater surface map
- a discussion of analytical results
- findings and conclusions
- if appropriate, recommendations for additional site work.

7.0 REFERENCES

Buck Engineering, Phase I Environmental Site Assessment: Waukesha Cherry-Burrell Property, 3/98

Buck Engineering, Voluntary Cleanup Program Application, 3/16/99

Delta Environmental Consultants, Inc., Phase I Environmental Assessment: Former Cherry-Burrell Facility, 11/97

Delta Environmental Consultants, Inc., Phase II Environmental Assessment: Former Cherry-Burrell Facility, 6/98

NYSDEC Correspondence, Philip G. Waite to Buck Environmental Services, 5/19/99

NYSDEC Correspondence, Philip G. Waite to Buck Environmental Services, 7/19/99

NYSDEC Division of Environmental Remediation (DER), Guidance for the Development of Data Usability Summary Reports, 9/97

United Nations Environment Programme/Industry and Environment Office, Tanneries and the Environment: A Technical Guide, UNEP 1991

8.0 TABLES

The following tables, referenced in the previous section of this work plan are provided on the following pages.

1 Sampling and Analytical Summary

2 Project Tasks and Schedule

3 Sampling Containers, Preservation and Holding Times

TABLE 1
SAMPLING AND ANALYTICAL SUMMARY
VCP INVESTIGATION
575 East Mill Street
Site No. V00223-6

OBJECTIVE*	ACTIVITY	SAMPLING METHOD	LOCATION	MATRIX	LEVEL**	ANALYSIS	NUMBER
1	Soil Background Levels	Hand Excavation	North of Site West of Site North of Tannery	Soil Soil Soil	4	TAL Metals TCL SVOA	3
2	Groundwater Quality	2" Monitoring Wells	Upgradient Southern Perimeter Downgradient of AST's	Water Water Water	4	TAL Metals TCL SVOA/VOA	1 3 1
3	Gas Manufacturing Site	Soil Borings w/ Split Spoon Samples	West End of Site	Soil	1 4	Visual/PID TAL Metals TCL SVOA/VOA	3
4	Tannery Site	Backhoe Test Pits	East End of Site	Soil	4	TAL Metals TCL SVOA/VOA TCL Pesticides	3
5	Petroleum AST's	Backhoe Test Pits	Downgradient of AST's	Soil	4	TAL Metals TCL SVOA/VOA	2
6	Electropolishing Wastes	Floor Borings	Electropolishing/ Treatment System	Soil (Water)	4	TAL Metals TCL SVOA	1 1 (2)
7	Exposure Pathways	Smoke/Dye Test (Hand Excavation)	In Plant (Along Creek Tunnel)	Water (Water/Soil)	1 (4)	Discharge (TCL SVOA/VOA) (TAL Metals)	1-2 (2)

* The Objective numbers above correspond with the Investigative Strategy/Sampling and Analytical Plan as shown in para. 4.1-4.7.
** The Levels shown above refer to the ones described in para. 5.2.

TAL Metals -- 23 Target Analyte List Inorganics and Cyanide by ASP CLP-M

TCL VOA's -- Target Compound List Volatiles by ASP 95-1

TCL SVOA's -- Target Compound List Semi-Volatiles by ASP 95-2

TCL Pesticides -- Target Compound List Pesticides/PCB's by ASP 95-3

For lists of the above compounds, refer to Appendix C

The locations listed in the above table are intended to be general references. For a more detailed description of the location of the sampling points, refer to the site map in Section 9.0 of this work plan.

TABLE 2 LITTLE FALLS PROJECT TASKS AND SCHEDULE

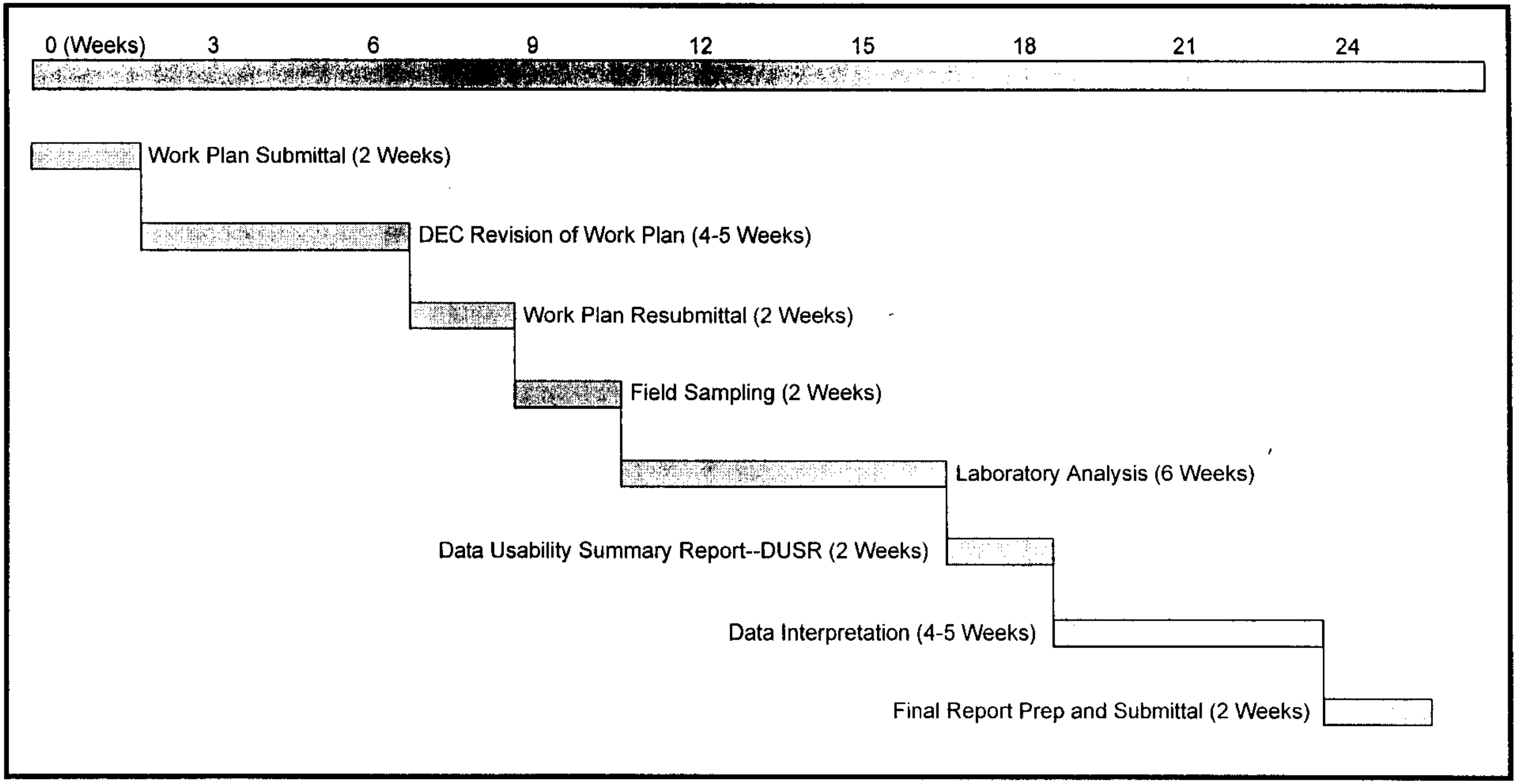

TABLE 3
SAMPLING CONTAINERS, PRESERVATION, AND HOLDING TIMES

PARAMETER	CONTAINER	SAMPLE SIZE	PRESERVATION	MAXIMUM HOLDING TIME
Water				
Volatile	Glass, Teflon® lined cap	3 x 44 ml.	Cool, 4°C .008% HCl to pH <2 (Optional)	Unpreserved - 7 day Preserved - 10 days
Semivolatile	amber glass with Teflon® lined cap	2 x 1 Liter	Cool, 4°C Store in dark	5 days after VTSR to extraction. 40 days for analysis.
PCB's/Pesticides	amber glass with Teflon® lined cap	2 x 1 Liter	Cool, 4°C Store in dark	5 days after VTSR to extraction. 40 days for analysis.
Metals excluding chromium^{+6} & mercury	Plastic or Glass	250 ml.	HNO_3 to pH < 2	6 Months
Chromium^{+6}	Plastic or Glass	250 ml.	Cool, 4°C	24 hours
Mercury	Plastic or Glass	250 ml.	HNO_3 to pH < 2	26 days
Cyanide	Plastic or Glass	500 ml.	Cool, 4°C NaOH to pH > 12	12 days
Soil				
Volatile	Glass wide mouth jar, Teflon® lined cap	4 oz.	Cool, 4°C	7 days
Semivolatile	Glass wide mouth with Teflon® lined cap	16 oz.	Cool, 4°C Store in dark	5 days after VTSR to extraction. 40 days for analysis.
PCB's/Pesticides	Glass wide mouth with Teflon® lined cap	16 oz.	Cool, 4°C Store in dark	5 days after VTSR to extraction. 40 days for analysis.
Metals excluding chromium^{+6} & mercury	Plastic or Glass	4 oz.	None	6 Months
Chromium^{+6}	Plastic or Glass	4 oz.	Cool, 4°C	24 hours
Mercury	Plastic or Glass	4 oz.	None	26 days
Cyanide	Plastic or Glass	4 oz.	Cool, 4°C	12 days

9.0 SITE MAP

A Site Map is enclosed which indicates the general extent of the property, building locations, and proposed sampling locations. The old sampling locations are also shown on the following Site Map.

APPENDICES

A. Health & Safety Plan

B. Standard Operating Procedures

C. Analyte Tables and Detection Limits

D. Employee Credentials

E. Laboratory Certifications

F. Chain of Custody Form

APPENDIX A

HEALTH AND SAFETY PLAN

BUCK ENGINEERING
HEALTH AND SAFETY PLAN
FOR
VOLUNTARY CLEANUP PROGRAM INVESTIGATION
AT
FELDMEIER EQUIPMENT INC.
575 EAST MILL STREET
CITY OF LITTLE FALLS, NEW YORK

JULY 1999

VERSION 2

PREPARED BY:

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DISCLAIMER

Buck Engineering (BE) and Buck Environmental Laboratories, Inc. (BEL) do not guarantee the health and safety of any person entering this site. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at this site. The health and safety guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior research and evaluation by trained personnel. While BE and BEL do not object to the use of this Health and Safety Plan by other firms or individuals, BE and BEL accept no liability for such use.

INTRODUCTION: Buck Engineering has been retained to conduct a Voluntary Cleanup Program (VCP) Investigation at the Feldmeier Equipment facility located at 575 East Mill Street in the City of Little Falls, NY. Trace levels of industrial solvents, petroleum, and heavy metals have been identified at the site. The planned scope of work at the site includes the installation and sampling of groundwater monitoring wells, collection of surface water samples, excavation of backhoe test pits, soil borings, the collection and analysis of soil samples from test pits and soil borings, and dye tracing of discharge points.

Note: This Health and Safety Plan is to be used by employees of Buck Engineering and Buck Environmental Laboratories.

SITE ADDRESS: 575 East Mill Street
Little Falls, NY

PROJECT SCHEDULE: The on-site work is scheduled to take place during the late summer 1999.

BE & BEL STAFF: John H. Buck, P.E. - Project Administrator
Phillip W. Shaffner - Historical Review and Report Management
Eric Monsen - Health & Safety and Field Sampling
Peter A. Indick - Analytical Chemistry

PERSONNEL COVERED BY PLAN: This Health & Safety Plan is intended only for the employees of BE and BEL. Other entities working at the site may, at their discretion, adopt this plan in whole or in part.

NOTIFICATIONS: Management personal of the subject facility will be notified when and where drilling and excavation activities will be taking place so that Feldmeier Equipment employees can take proper precautions to avoid interaction with these activities.

SITE DESCRIPTION: This industrial property consists of two separate lots which, together, total approximately 6.5 acres and are located at 575 East Mill Street (occupied by Feldmeier Equipment) in the City of Little Falls, Herkimer County, New York. One lot, approximately 0.75 acres in size, is located on the north side of East Mill Street, and contains the boiler building for the facility and two small parking lots. The main facility is located on the south side of East Mill Street. The Mohawk River is the southern property line. Feldmeier Equipment manufactures pharmaceutical and food processing tanks at this property.

The property has been used for numerous industrial purposes for more than 115 years. The current owner of the property (United Dominion Industries), conducted business as Waukesha Cherry-Burrell, and manufactured tanks on-site for more than 50 years. In addition to the manufacture of tanks, portions of the property have been used in the past as a knitting mill, a tannery and a coal gasification plant. The most environmentally significant of these are believed to be the previous use by the tannery and coal gasification plant.

SITE ACTIVITIES:

1. General reconnaissance.
2. The collection of subsurface soil samples from several locations by soil boring equipment or back-hoe test pits.
3. Installation and sampling of groundwater monitoring wells.
4. The collection of surface water samples.
5. Dye tracing of plant outfalls.

OVERALL SITE HAZARD POTENTIAL Low to moderate

WORK AREA: The designated work areas will be, primarily, the area between the plant and the Mohawk River, below the aboveground storage tank area, and at the east end of the property. Additional work may be performed at other locations on the site. The work area will be adequately posted and taped and/or fenced off to warn and prevent unauthorized personal from entering the site.

EXCLUSION ZONE: None

CONTAMINATION REDUCTION ZONE: A decontamination reduction zone will be established within the work area where the back-hoe bucket and other excavation equipment can be decontaminated between sampling rounds.

SUPPORT ZONE: None

DECONTAMINATION PROCEDURES: Personal decontamination, if required, will be through the use of soap and water. Decontamination of heavy equipment will be conducted in the contamination reduction zone using a high pressure steam cleaner.

POTENTIAL HAZARDS: Physical: The work will involve the use of heavy equipment with the hazards inherent in working around such equipment such as personal safety, overhead electric lines, and underground utilities.

Heat exhaustion:

Chemical: Trace levels of various volatile organic compounds (VOC's), polynuclear aromatic compounds (PAH's), and heavy metals have been identified at this site in a previous Phase II Environmental Site Assessment. The following contaminants have been identified at the site whose concentrations are above either the NYSDEC groundwater quality standard or NYSDEC cleanup objective:

VOC's: Benzene
PAH's: Benzo(a)anthracene, Chrysene, bis(2-Ethylhexyl)phthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene.
Heavy Metals: Lead, Arsenic

Confined Space Entry: None planned or anticipated.

FIELD MONITORING EQUIPMENT: 10.2 E.V. Photoionization detector (PID)

WORK ZONE AIR MONITORING Work zone monitoring will be conducted to address the safety of workers within the designated work zone. A photoionization detector (PID) will be used to field screen ambient air and soils for volatile organic compounds (VOC's) within the work zone during well drilling, soil boring, and excavation activities. Measurements will be made periodically through the work day within the work zone. The VOC's action level will be 5 ppm above background. The action level for metals contaminants will be the presence of visible dust within the work zone. If action level(s) are exceeded in the work zone then all work is to stop immediately until all workers don proper respiratory equipment.

PERIMETER AIR MONITORING Work zone perimeter monitoring will be conducted to address the safety of the public and surrounding facility workers. A photoionization detector (PID) will be used to field screen ambient air for VOC's at the perimeter of the work zone during well drilling, soil boring, and excavation activities. Measurements will be made periodically through the work day at upwind and downwind perimeter locations. The VOC's action level will be 5 ppm above background. The action level for metals contaminants will be based on the presence of visible dust at the work zone perimeter. If action level(s) are exceeded at the work zone perimeter then all work is to stop immediately until additional safety and engineering controls are established

PROTECTIVE EQUIPMENT: Hard hats, safety shoes, safety glasses and ear plugs.

PROTECTIVE CLOTHING: Level D (normal work clothes)

SPECIAL SAFETY PROCEDURES: All personnel working at the site must read and sign the Health & Safety Plan. No unauthorized visitors will be allowed in the immediate vicinity of the heavy equipment while work is in progress.

Note: All injuries, regardless of severity, must be reported immediately.

RESPIRATORS: All personnel working at the site will have a respirator available equipped with both activated carbon canisters and HEPA filters. Use of the respirators is not required unless elevated airborne VOC contaminant levels, as measured by the PID, exceed 5 ppm above background, or if visible dust is observed from excavation or boring activities related to the heavy metals investigation.

EMERGENCY ESCAPE ROUTES: The normal escape would be to the north toward East Mill Street.

Note: In the event of an emergency, all project staff are to meet as soon as possible on East Mill Street, directly in front of the main office building. No personnel may re-enter the property until authorized to do so.

EMERGENCY ASSISTANCE:
Ambulance: 911
Fire Department: 911
Police: 911
Hospital: 315-823-1000

DIRECTIONS TO NEAREST HOSPITAL: (Little Falls Hospital)

Exit the site and go left on East Mill Street

Bear right on West Mill Street.

Turn right onto Route 167 for a short distance.

Turn right on Albany Street and proceed on Albany Street to Main Street.

Turn left onto Main Street for a short distance.

Turn right onto Saulsbury Street.

Turn right onto Burwell Street.

The Hospital is located at 140 Burwell Street (315-823-1000)

WHOM TO CONTACT IN CASE OF EMERGENCY
Buck Engineering - Mr. John Buck - 607-753-3403
United Dominion Industries - Ms. Ginger Sunde - 704-347-6869
NYS Health Department (Herkimer) - 315-866-6879
NYS DEC, Region 6, Mr.Phillip G. Waite (Watertown) - 315-785-2513

NAME OF PERSON THAT PREPARED THE PLAN: Eric Monsen

DESIGNATED SAFETY OFFICER: Eric Monsen

PLAN REVIEW AND APPROVAL:

Eric Monsen	Date
Phillip W. Shaffner	Date
John H. Buck	Date

PROJECT STAFF ACKNOWLEDGMENTS: Please sign below indicating that you have read this plan, that you understand this plan, and that all safety related questions have been addressed to your satisfaction.

John H. Buck	Date
Phillip W. Shaffner	Date
Eric Monsen	Date
Peter Indick	Date

ATTACHMENTS: 1. Site Location Map

RECORD OF SAFETY MEETINGS

Date	Conducted By	Names of persons attending

APPENDIX B

STANDARD OPERATING PROCEDURES

BUCK ENVIRONMENTAL LABORATORIES STANDARD OPERATING PROCEDURE

TOPIC: ***FIELD CALIBRATION OF PHOTOIONIZATION DETECTOR (PID)***

SOP NUMBER: FLD-13 DATE: 6/07/99 REV 1.0 APPROVED

I. PURPOSE

The purpose of these procedures is to provide detailed instructions for field calibration of a photoionization detector (PID).

II. APPLICABILITY

This procedure will be used by all employees of Buck Environmental Laboratories who are involved in the use of the HNU Model PI-101 Photoionization Detector. This standard operating procedure is specific to the HNU Model PI-101 Photoionization Detector.

III. SUPPLIES AND EQUIPMENT

The following is a list of supplies, equipment and information needed to field calibrate the PID meter:

- HNU Model PI-101 Photoionization Detector with probe attached and probe tip installed
- 17 liter cylinder of calibration gas (100ppm Isobutylene)
- 4 liter Tedlar bag (12"x12")
- Flow regulator for the calibration gas cylinder
- Misc. hose attachments

IV. PROCEDURE

The following procedures should be followed to properly field calibrate the PID meter:

1. Turn the PID meter on to the standby position and zero the instrument by adjusting the zero knob;
2. Attach the regulator to the calibration gas cylinder;
3. Attach the tedlar bag to the regulator with a piece of flexible tygon tubing;
4. Open the regulator and tedlar bag and fill the bag with gas;
5. Close the tedlar bag valve and turn the cylinder regulator off when the bag if full;
6. Remove the hose from the regulator and remove the regulator valve from the gas cylinder;
7. Place the hose from the tedlar bag over the inlet of the PID probe tip;
8. Turn the PID to the 200 scale and open the tedlar bag valve;
9. If the reading on the dial is 70 ppm the instrument is in calibration and no adjustments are necessary;
10. If the reading is other than 70 ppm then you must adjust the span setting on the PID meter until the reading is 70 ppm. When you are done adjusting the span setting, lock it in place;

IV. Procedure (Con't.)

11. Close the tedlar bag valve, and turn the PID off;
12. Record the data in the project log book or field notes;
13. The instrument is now ready for use.

Note: Don't forget to remove the valve from the isobutylene immediately after filling the tedlar bag to extend the life of the cylinder.

V. ADDITIONAL INFORMATION

Additional information on sampling may be found in the following references:

1. HNU Systems Model PI-101, Instruction Manual.

END OF PROCEDURE

Initial Author: Eric Monsen Date: 6/07/99

BUCK ENVIRONMENTAL LABORATORIES STANDARD OPERATING PROCEDURE

TOPIC: ***MONITORING WELL INSTALLATION***

SOP NUMBER: FLD-15 DATE: 6/07/99 REV 1.0 APPROVED

I. PURPOSE

The purpose of these procedures is to provide detailed instructions for the proper installation of groundwater monitoring wells.

II. APPLICABILITY

This procedure will be used by all employees of Buck Environmental Laboratories who will observe and conduct contractor oversight during the installation of groundwater monitoring wells. Drilling operations and physical installation of monitoring wells are performed by others (well drillers).

III. SUPPLIES AND EQUIPMENT

The following is a list of supplies, equipment and information needed to install a groundwater monitoring well:

- Plans showing monitoring well location(s);
- Drill rig, augers, rods, split spoon samplers;
- Decontamination supplies, rinse water - steam cleaner;
- Well casing (PVC, stainless);
- Well screen (PVC, stainless);
- Screen filter packing (siliceous sand);
- Bentonite seal
- Grout/cement
- Well cap/padlock/keys
- Protective steel casing (standpipe or flushmount)

IV. PROCEDURE

The following procedures outline the installation of a typical groundwater monitoring well. Site geology, contaminant type, regulations, and other conditions may require a specific type of well construction.

Safety Precautions/Decontamination:

1. Prior to the installation of the groundwater monitoring wells notification should be given to UFPO so that utility owners can review the site and mark the locations or underground utilities on the site so that these utilities are not disturbed or damaged during drilling operations.

2. Caution should also be taken to avoid drilling near powerlines and other utilities.

IV. Procedure (Con't)

3. Prior to starting well drilling operations the site plan should be reviewed and upgradient wells or wells suspected to have lower contaminant concentration should be drilled and installed first with the well suspected to have the highest contamination installed last.

4. All equipment used in the drilling process including augers, drill head, split spoon samplers, and extension rods should be steam cleaned before use and between boreholes.

5. The monitoring well casing, screen, and misc. fittings should be properly decontaminated prior to installing in the borehole.

6. All water used during the drilling process should be drinking water quality.

7. Hardhats, safety glasses, ear plugs, and steel toed shoes should be worn during all borehole or well drilling operations.

Split Spoon Sampling/Well Logs

1. During the well boring operation continuous split spoon soil samples are typically collected over the entire borehole depth. A split spoon sampler consists of a stainless steel hollow tube comprised of two halves. Split spoon samples are obtained by hammering the assembled split spoon into the ground through the center of the augers to the depth of the spoon (typically 2 feet). Split spoons are driven into the ground with a 140 pound hammer mounted on the drill rig. During the hammering process the number of hammer blows are recorded for each 6" depth increment. This data is recorded in the well log and is used in calculations for determining soil permeability and other soil properties. The spoon is then extracted from the borehole and the soils in the split spoon can be observed and sampled. Soils can be also be sampled for contamination analysis or for soil properties such as sieve analysis. A separate standard operating procedure (Fld-3-1.sop) has been published that addresses field screening and sampling of soils for contamination analysis from split spoon samples. Split spoon sampling is useful in defining site soil types, stratigraphic sequences, and contamination zones. During each well drilling and split spoon collection process, a well log should be maintained obtained which includes split spoon data, soil types, hammer blows, total borehole depth, water depth, contamination observations, and well construction.

Monitoring Well Construction:

1. Monitoring well construction will depend on many factors such as the project specifications, regulations, geology of the site, the types and concentrations of contaminants present, and man made factors such as paved areas, roads etc.

2. During a typical monitoring well installation the borehole is drilled to a depth of 6 to 10 feet below the groundwater water surface. The well boring should have an inside diameter of at least 2 inches larger than the outside diameter of the well casing or well screen.

IV. Procedure (Con't)

3. Once the borehole is complete the screen and well casing can be set in place. Well screens and casings are typically constructed of Schedule 40 PVC or stainless steel and have a 2.0" inside diameter. On some occasions 3.0", 4.0" or larger monitoring wells may be installed. A typical screen has a slot size of 0.20" and has a total length of 10 feet. Longer screen lengths and different slot sizes are sometimes called for depending on site conditions. Typically the screen and well casing sections are threaded and are screwed together. In some instances fittings are used. In these instances the use of glues is not recommended.

4. After the screen and well casing are set in place, the sand filter packing can be installed. The filter material should consist of uncontaminated siliceous sand with a grain size that will not pass through the well screen and at the same time will prevent fine particulates from entering the well without inhibiting water flow into the well. Sand filter packing should be placed along the entire length of the well screen and should terminate no more than 6 inches below the screen and no more than 2 feet above the top of the screen.

5. A minimum of three feet of bentonite (pellets or chips) should be placed above the sand filter packing.

6. The remainder of the annular space can be filled with grout consisting of bentonite, cement and bentonite, of other suitable impermeable material.

7. Wells should terminate at the ground surface with either a flush mount or stand pipe well cover. The use of either of these will depend on the site conditions. In general, if the well is installed in an area of low vehicle traffic or in a wooded/field area then stand pipe termination is recommended. If the well is installed in a paved area such a driveway, parking lot, or road the a flush mount may be more appropriate. The well should be clearly labeled with an identification number and a locking cap and padlock should be installed over the well casing.

8. Information on development and sampling of the monitoring well is covered in Standard Operating Procedures Fld-01.sop and Fld-04.sop.

V. ADDITIONAL INFORMATION

Additional information on sampling may be found in the following references:

1. NYCRR Part 360, Solid Waste Management Facilities.
2. Fetter, C.W. (2nd Edition) - Applied Hydrogeology.
3. USEPA Ground Water Monitoring Technical Enforcement Guidance Document.
4. NYSDEC, Sampling Guidelines and Protocols.
5. Nielsen/Johnson (ASTM STP 1053), Groundwater and Vadose Zone Monitoring

END OF PROCEDURE

Initial Author: Eric Monsen Date: 6/08/99

APPENDIX C

ANALYTE TABLES AND DETECTION LIMITS

Superfund Target Compound List (TCL)

Volatile Analytical (VOA) Methods and Quantitation Limits[1]

COMPOUND NAME	METHOD	WATER	SOIL
Chloromethane	95-1	10 ug/L	10 ug/kg
Bromomethane	95-1	10 ug/L	10 ug/kg
Vinyl chloride	95-1	10 ug/L	10 ug/kg
Chloroethane	95-1	10 ug/L	10 ug/kg
Methylene chloride	95-1	10 ug/L	10 ug/kg
Acetone	95-1	10 ug/L	10 ug/kg
Carbon disulfide	95-1	10 ug/L	10 ug/kg
1,1-Dichloroethylene	95-1	10 ug/L	10 ug/kg
1,1-Dichloroethane	95-1	10 ug/L	10 ug/kg
1,2-Dichloroethylene(total)	95-1	10 ug/L	10 ug/kg
Chloroform	95-1	10 ug/L	10 ug/kg
1,2-Dichloroethane	95-1	10 ug/L	10 ug/kg
2-Butanone	95-1	10 ug/L	10 ug/kg
1,1,1-Trichloroethane	95-1	10 ug/L	10 ug/kg
Carbon tetrachloride	95-1	10 ug/L	10 ug/kg
Bromodichloromethane	95-1	10 ug/L	10 ug/kg
1,2-Dichloropropane	95-1	10 ug/L	10 ug/kg
cis-1,3-Dichloropropene	95-1	10 ug/L	10 ug/kg
Trichloroethene	95-1	10 ug/L	10 ug/kg
Dibromochloromethane	95-1	10 ug/L	10 ug/kg
1,1,2-Trichloroethane	95-1	10 ug/L	10 ug/kg
Benzene	95-1	10 ug/L	10 ug/kg
trans-1,3-Dichloropropene	95-1	10 ug/L	10 ug/kg
Bromoform	95-1	10 ug/L	10 ug/kg
4-Methyl-2-pentanone	95-1	10 ug/L	10 ug/kg
2-Hexanone	95-1	10 ug/L	10 ug/kg
Tetrachloroethene	95-1	10 ug/L	10 ug/kg
Toluene	95-1	10 ug/L	10 ug/kg
1,1,2,2-Tetrachloroethane	95-1	10 ug/L	10 ug/kg
Chlorobenzene	95-1	10 ug/L	10 ug/kg
Ethyl benzene	95-1	10 ug/L	10 ug/kg
Styrene	95-1	10 ug/L	10 ug/kg
Xylenes (total)	95-1	10 ug/L	10 ug/kg

Semi-Volatile Analytical (SVOA) Methods and Quantitation Limits[2]

COMPOUND NAME	METHOD	WATER	SOIL
Phenol	95-2	10 ug/L	330 ug/kg
bis(2-Chloroethyl)ether	95-2	10 ug/L	330 ug/kg
2-Chlorophenol	95-2	10 ug/L	330 ug/kg
1,3-Dichlorobenzene	95-2	10 ug/L	330 ug/kg
1,4-Dichlorobenzene	95-2	10 ug/L	330 ug/kg
1,2-Dichlorobenzene	95-2	10 ug/L	330 ug/kg
2-Methylphenol	95-2	10 ug/L	330 ug/kg
2,2'-oxybis(1-Chloro-propane)	95-2	10 ug/L	330 ug/kg
4-Methylphenol	95-2	10 ug/L	330 ug/kg
N-Nitroso-di-N-propylamine	95-2	10 ug/L	330 ug/kg
Hexachloroethane	95-2	10 ug/L	330 ug/kg
Nitrobenzene	95-2	10 ug/L	330 ug/kg
Isophorone	95-2	10 ug/L	330 ug/kg
2-Nitrophenol	95-2	10 ug/L	330 ug/kg
2,4-Dimethylphenol	95-2	10 ug/L	330 ug/kg
bis(2-Chloroethoxy)methane	95-2	10 ug/L	330 ug/kg
2,4-Dichlorophenol	95-2	10 ug/L	330 ug/kg
1,2,4-Trichlorobenzene	95-2	10 ug/L	330 ug/kg
Naphthalene	95-2	10 ug/L	330 ug/kg
4-Chloroaniline	95-2	10 ug/L	330 ug/kg
Hexachlorobutadiene	95-2	10 ug/L	330 ug/kg
4-Chloro-3-methylphenol	95-2	10 ug/L	330 ug/kg
2-Methylnaphthalene	95-2	10 ug/L	330 ug/kg
Hexachlorocyclopentadiene	95-2	10 ug/L	330 ug/kg
2,4,6-Trichlorophenol	95-2	10 ug/L	330 ug/kg
2,4,5-Trichlorophenol	95-2	25 ug/L	800 ug/kg
2-Chloronaphthalene	95-2	10 ug/L	330 ug/kg
2-Nitroaniline	95-2	25 ug/L	800 ug/kg
Dimethylphthalate	95-2	10 ug/L	330 ug/kg
Acenaphthylene	95-2	10 ug/L	330 ug/kg
2,6-Dinitrotoluene	95-2	10 ug/L	330 ug/kg
3-Nitroaniline	95-2	25 ug/L	800 ug/kg
Acenaphthene	95-2	10 ug/L	330 ug/kg
2,4-Dinitrophenol	95-2	25 ug/L	800 ug/kg
4-Nitrophenol	95-2	25 ug/L	800 ug/kg
Dibenzofuran	95-2	10 ug/L	330 ug/kg
2,4-Dinitrotoluene	95-2	10 ug/L	330 ug/kg
Diethylphthalate	95-2	10 ug/L	330 ug/kg
4-Chlorophenyl phenyl ether	95-2	10 ug/L	330 ug/kg
Fluorene	95-2	10 ug/L	330 ug/kg
4-Nitroaniline	95-2	25 ug/L	800 ug/kg
4,6-Dinitro-2-methylphenol	95-2	25 ug/L	800 ug/kg
N-Nitrosodiphenylamine	95-2	10 ug/L	330 ug/kg
4-Bromophenyl phenyl ether	95-2	10 ug/L	330 ug/kg
Hexachlorobenzene	95-2	10 ug/L	330 ug/kg
Pentachlorophenol	95-2	25 ug/L	800 ug/kg
Phenanthrene	95-2	10 ug/L	330 ug/kg

Anthracene	95-2	10 ug/L	330 ug/kg
Carbazole	95-2	10 ug/L	330 ug/kg
Di-n-butyl phthalate	95-2	10 ug/L	330 ug/kg
Fluoranthene	95-2	10 ug/L	330 ug/kg
Pyrene	95-2	10 ug/L	330 ug/kg
Butyl benzyl phthalate	95-2	10 ug/L	330 ug/kg
3,3'-Dichlorobenzidine	95-2	10 ug/L	330 ug/kg
Benz[a]anthracene	95-2	10 ug/L	330 ug/kg
Chrysene	95-2	10 ug/L	330 ug/kg
bis(2-Ethlhexyl)phthalate	95-2	10 ug/L	330 ug/kg
Di-n-octyl phthalate	95-2	10 ug/L	330 ug/kg
Benzo[b]fluoranthene	95-2	10 ug/L	330 ug/kg
Benzo[k]fluoranthene	95-2	10 ug/L	330 ug/kg
Benzo[a]pyrene	95-2	10 ug/L	330 ug/kg
Indeno(1,2,3-cd)pyrene	95-2	10 ug/L	330 ug/kg
Dibenz[a,h]anthracene	95-2	10 ug/L	330 ug/kg
Benzo[g,h,i]perylene	95-2	10 ug/L	330 ug/kg

Pesticide & PCB Analytical Methods and QuantitationLimits[3]

COMPOUND NAME	METHOD	WATER	SOIL
Alpha-BHC	95-3	0.05 ug/L	1.7 ug/kg
Beta-BHC	95-3	0.05 ug/L	1.7 ug/kg
Delta-BHC	95-3	0.05 ug/L	1.7 ug/kg
Gamma-BHC (Lindane)	95-3	0.05 ug/L	1.7 ug/kg
Heptachlor	95-3	0.05 ug/L	1.7 ug/kg
Aldrin	95-3	0.05 ug/L	1.7 ug/kg
Heptachlor epoxide	95-3	0.05 ug/L	1.7 ug/kg
Endosulfan I	95-3	0.05 ug/L	1.7 ug/kg
Dieldrin	95-3	0.10 ug/L	3.3 ug/kg
4,4'-DDE	95-3	0.10 ug/L	1.7 ug/kg
Endrin	95-3	0.10 ug/L	3.3 ug/kg
Endosulfan II	95-3	0.10 ug/L	3.3 ug/kg
4,4'-DDD	95-3	0.10 ug/L	3.3 ug/kg
Endosulfan sulfate	95-3	0.10 ug/L	3.3 ug/kg
4,4'-DDT	95-3	0.10 ug/L	3.3 ug/kg
Methoxychlor	95-3	0.50ug/L	17.0 ug/kg
Endrin ketone	95-3	0.10 ug/L	3.3 ug/kg
Endrin aldehyde	95-3	0.10 ug/L	3.3 ug/kg
Alpha-chlordane	95-3	0.05 ug/L	1.7 ug/kg
Gamma-chlordane	95-3	0.05 ug/L	1.7 ug/kg
Toxaphene	95-3	5.0 ug/L	170. ug/kg
AROCLOR-1016	95-3	1.0 ug/L	33.0 ug/kg
AROCLOR-1221	95-3	2.0 ug/L	67.0 ug/kg
AROCLOR-1232	95-3	1.0 ug/L	33.0 ug/kg
AROCLOR-1242	95-3	1.0 ug/L	33.0 ug/kg
AROCLOR-1248	95-3	1.0 ug/L	33.0 ug/kg
AROCLOR-1254	95-3	1.0 ug/L	33.0 ug/kg
AROCLOR-1260	91-3	1.0 ug/L	33.0 ug/kg

Superfund Target Analyte List (TAL)

Inorganic Analytical Methods and Quantitation Limits[4]
(TAL Metals)

COMPOUND NAME	METHOD	WATER	SOIL
Aluminum	200.7 CLP-M*	200 ug/L	20 mg/kg
Antimony	200.7 CLP-M*	60 ug/L	6 mg/kg
Arsenic	200.7 CLP-M*	10 ug/L	1 mg/kg
Barium	200.7 CLP-M*	200 ug/L	20 mg/kg
Beryllium	200.7 CLP-M*	5 ug/L	0.5 mg/kg
Cadmium	200.7 CLP-M*	5 ug/L	0.5 mg/kg
Calcium	200.7 CLP-M*	5000 ug/L	500 mg/kg
Chromium	200.7 CLP-M*	10 ug/L	1 mg/kg
Cobalt	200.7 CLP-M*	50 ug/L	5 mg/kg
Copper	200.7 CLP-M*	25 ug/L	2.5 mg/kg
Iron	200.7 CLP-M*	100 ug/L	10 mg/kg
Lead	200.7 CLP-M*	3 ug/L	0.3 mg/kg
Magnesium	200.7 CLP-M*	5000 ug/L	500 mg/kg
Manganese	200.7 CLP-M*	15 ug/L	1.5 mg/kg
Mercury	245.1 CLP-M*	0.2 ug/L	0.02 mg/kg
Nickel	200.7 CLP-M*	40 ug/L	4 mg/kg
Potassium	200.7 CLP-M*	5000 ug/L	500 mg/kg
Selenium	200.7 CLP-M*	5 ug/L	0.5 mg/kg
Silver	200.7 CLP-M*	10 ug/L	1 mg/kg
Sodium	200.7 CLP-M*	5000 ug/L	500 mg/kg
Thallium	200.7 CLP-M*	10 ug/L	1mg/kg
Vanadium	200.7 CLP-M*	50 ug/L	5 mg/kg
Zinc	200.7 CLP-M*	20 ug/L	2 mg/kg
Cyanide	335.2 CLP-M**	10 ug/L	1 mg/kg

* CLP-M modified for the Contract Laboratory Program
** Processed by LaChat Flow Injection Analyzer

Notes
1 Soil limits are based on “As Received” basis (0% moisture).
2 Soil limits are based on “As Received” basis (0% moisture).
3 Soil limits are based on “As Received” basis (0% moisture).
4 Limits are reported as liquid matrix. Soil limits based on 0% moisture.
5 Limits are reported as concentrations in extract.
6 Cyanide measured as HCN, Sulfide measured as H_2S.

Compound list and quantitation limits from N.Y.S.D.E.C. Analytical Services Protocol, October, 1995. MDL's and IDL's are laboratory and instrument specific, and are typically lower than the quantitation limit by factors of 2-10.

APPENDIX D

EMPLOYEE CREDENTIALS

BUCK ENVIRONMENTAL LABORATORIES, INC.

EMPLOYEE CREDENTIALS INFORMATION

Name:	**John H. Buck, P.E.**
Position:	Laboratory Director and Principal Engineer
Education:	Bachelor of Science Degree Syracuse University 1971 Syracuse New York Master of Business Administration Syracuse University 1974 Master of Science in Civil and Environmental Engineering Cornell University 1982 Ithaca, New York
Special Training:	Perkin Elmer Gas Chromatograph Operation - 1986 Hewlett Packard Gas Chromatograph/Mass Spectrophotometer Operation - 1989 Polarizing Light Microscopy for Asbestos Identification - 1988 Sampling and Evaluation of Airborne Asbestos Dust - NIOSH 582 Equivalency 1987 National Institute of Building Sciences Specification Workshop - 1988 Asbestos Abatement Designers, Contractors Workers and Supervisors Workshop - 1988 Inspecting Buildings for Asbestos Containing Materials (AHERA) - 1987 Managing Asbestos in Buildings (AHERA) - 1987
Other Qualifications:	Laboratory Director - New York State Department of Health - Environmental Laboratory Approval Program (10795) New York State Licensed Professional Engineer (LN 055460) EPA Accredited Opacity Observer NYSDOL Asbestos Abatement Designer and Supervisor
Related Occupational Experience:	Professor of Technology and Engineering Science Tompkins Cortland County Community College - 1975-1986 Laboratory Director - New York State Department of Health Approved Environmental Laboratory - 1986 to present Instructor - New York State Department of Health Water Treatment Plant Operator Training Program (A, B, C, and D Grades) - 1988 to present Project Director for Phase I and Phase II Environmental Site Assessments Project Director for Asbestos, Lead, PCB and Hydrocarbon Remediation Projects
Member:	NYSAAEL (NYS Environmental Laboratory Association) AWWA (American Water Works Association) APHA (American Public Health Association) ASTM (American Society for Testing and Materials) NYSPE (NYS Society of Professional Engineers) ASCE (American Society of Civil Engineers) NAFE (National Academy of Forensic Engineers)

BUCK ENGINEERING

EMPLOYEE CREDENTIALS INFORMATION

Name: **Wayne C. Matteson, P. E.**

Position: Staff Engineer

Education: Bachelor of Science Degree
State University Of New York
College of Environmental Science and Forestry - 1989
Syracuse, New York.

Special Training: Environmental Impact Studies Course, SUNY ESF, 1988

Real Estate Site Assessments and Environmental Audits
Eastern Conference, 1989

Soil Erosion and Sediment Control Seminar, 1990

Soils Identification and Interpretation Seminar, 1990

Wellhead Protection of Public Water Supplies, 1990

Licensing: NY State Licensed Professional Engineer (LN 068896)

Related Occupational Experience:

Buck Environmental Laboratories, Inc.
Cortland, New York 1993 to present
Environmental Engineer

John S. MacNeill, Jr., P. C.
Homer, NY 1987-1993
Senior Project Engineer

Thonet Associates
Livingston, NJ 1986-1987
Environmental Consultant

Current Responsibilities:

Project Manager for Phase I and II Environmental Site Assessments
Project Engineer for Soil and Groundwater Remediation Projects
Manager of Storm Water Discharge Permits

BUCK ENGINEERING

EMPLOYEE CREDENTIALS INFORMATION

Name: **Eric H. Monsen**

Position: **Industrial Hygienist**

Education:

Associate of Arts and Science Degree
Suffolk County Community College - 1986
Selden, New York

Bachelor of Arts Degree
Geology
State University of New York at Plattsburgh 1988
Plattsburgh, New York

Related Occupational Experience:

Buck Environmental Laboratories, Inc.
Cortland, New York
December 1991 to present

TAKA Analytical Services
Northport, New York
July 1988 to September 1991

Special Training:

OSHA 40 hour Hazardous Waste Operations and Emergency Response - 1992
Ground Water & Vadose Zone Monitoring & Sampling Technology (ASTM) - 1989
Sampling and Evaluation of Airborne Asbestos Dust - NIOSH 582 Equivalency -1988
Inspecting Buildings for Asbestos Containing Materials (AHERA) - 1988
Practices and Procedures for Asbestos Control-Worker/Supervisor - 1988
Investigating and Mitigating Microbiological Contamination in Buildings - 1994

Current Responsibilities:

Supervision of field personal at hazardous waste sites, landfills, excavation sites, and asbestos abatement projects.
Laboratory Chemical Hygiene Officer.
Industrial Hygiene Investigations including indoor air quality, stack emissions, data interpretation, and report preparation.
Monitoring well installation, development, and sampling.
Operation, calibration, and maintenance of field instrumentation.

APPENDIX E

LABORATORY CERTIFICATIONS

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Wadsworth Center The Governor Nelson A. Rockefeller Empire State Plaza P.O. Box 509 Albany, New York 12201-0509

Dennis P. Whalen
Executive Deputy Commissioner

MARCH 18, 1999

Dear Laboratory Director:

Please note that although your ELAP Certificate of Approval expires on 12:01 AM April 1, 1999, it is still valid until July 15, 1999, as per ELAP Certification Manual, No. 140, Page 13 of 42, dated 12/6/95, Part 55-2.4e NYCRR. "...during any extension or grace period permitted by this Subpart, a laboratory approval shall remain in force beyond the expiration date of the certificate of approval, unless such approval is specifically terminated or suspended in writing."

Notification regarding the issuance of 1999- 2000 ELAP Certificate(s) of Approval is pending receipt of all non-governmental laboratories' Total Adjusted Volumes and Approval of the 1999- 2000 ELAP Budget by the New York State Legislature.

Further verification of your laboratory's approved ELAP status is available by calling the Program Office at (518) 485-5570.

Sincerely,

Linda L. Madlin

Linda L. Madlin
Administrative Assistant
Environmental Laboratory
Approval Program

LLM:saw

NEW YORK STATE DEPARTMENT OF HEALTH

BARBARA A. DEBUONO, M.D., M.P.H. Commissioner

Expires 12:01 AM April 1, 1999
ISSUED April 1, 1998
REVISED December 29, 1998

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

Lab ID No.: 10795

Director: MR. JOHN BUCK
Lab Name: BUCK ENVIRONMENTAL LABORATORIES INC
Address : 3845 ROUTE 11 SOUTH
CORTLAND NY 13045

is hereby APPROVED as an Environmental Laboratory for the category

ENVIRONMENTAL ANALYSES/ POTABLE WATER

All approved subcategories and/or analytes are listed below:

Dri g Water Non-Metals :
- alinity
- lcium Hardness
- Chloride
- C nide
- or
- oride, Total
- itrite (as N)
- Nitrate (as N)
- rogen Ion (pH)
- ids, Total Dissolved
- lfate (as SO4)

D.W. Miscellaneous :
- Di (2-ethylhexyl) adipate
- Bis(2-ethylhexyl) phthalate
- Benzo(a)pyrene
- Butachlor
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- Propachlor

Drinking Water Bacteriology (ALL)
Drinking Water Metals I (ALL)
Microextractables (ALL)
Polychlorinated Biphenyls (ALL)
Volatile Halocarbons (ALL)

Drinking Water Trihalomethane (ALL)
Drinking Water Metals II (ALL)
D.W. Organohalide Pesticides (ALL)
Volatile Aromatics (ALL)

Serial No.: 104238

Wadsworth Center

Property of the New York State Department of Health. Valid only at the address shown.
Must be conspicuously posted. Valid certificate has a red serial number.

DOH-3317 (3/97)

NEW YORK STATE DEPARTMENT OF HEALTH

BARBARA A. DEBUONO, M.D., M.P.H. Commissioner

Expires 12:01 AM April 1, 1999
ISSUED April 1, 1998
REVISED July 14, 1998

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

Lab ID No.: 10795

Director: MR. JOHN BUCK
Lab Name: BUCK ENVIRONMENTAL LABORATORIES INC
Address : PO BOX 5150 3845 ROUTE 11 SO
CORTLAND NY 13045

is hereby APPROVED as an Environmental Laboratory for the category

ENVIRONMENTAL ANALYSES NON POTABLE WATER

All approved subcategories and/or analytes are listed below:

[illegible] drocarbon Pesticides :
- [illegible]-DDD
- 4,4'-DDE
- 4,4'-DDT
- [illegible]-BHC
- [illegible]
- [illegible]a-BHC
- Chlordane Total
- de[illegible]-BHC
- [illegible]rin
- [illegible]in aldehyde
- [illegible]nari n
- Endosulfan I
- [illegible]sulfan II
- [illegible]sulfan sulfate
- [illegible]achlor
- Heptachlor epoxide
- Li[illegible]ne
- [illegible]xychlor
- [illegible]phene

Wastewater Miscellaneous :
- Cyanide, Total
- Color
- Phenols
- Oil & Grease Total Recoverable
- Hydrogen Ion (pH)
- Sulfide (as S)
- Temperature
- Organic Carbon, Total

Wastewater Metals II (ALL)
Nutrient (ALL)
Phthalate Esters (ALL)
Purgeable Halocarbons (ALL)

Mineral :
- Alkalinity
- Calcium Hardness
- Chloride
- Fluoride, Total
- Sulfate (as SO4)
- Hardness, Total

Chlorinated Hydrocarbons (ALL)
Haloethers (ALL)
Nitroaromatics and Isophorone (ALL)
Polynuclear Aromatics (ALL)
Priority Pollutant Phenols (ALL)
Residue (ALL)

Wastewater Bacteriology :
- Coliform, Fecal
- Coliform, Total

Wastewater Metals III :
- Cobalt, Total
- Thallium, Total

Benzidines (ALL)
Demand (ALL)
Wastewater Metals I (ALL)
Nitrosoamines (ALL)
Polychlorinated Biphenyls (ALL)
Purgeable Aromatics (ALL)
TCLP Additional Compounds (ALL)

Serial No.: 103161

Wadsworth Center

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OH-3317 (3/97)

NEW YORK STATE DEPARTMENT OF HEALTH

BARBARA A. DEBUONO, M.D., M.P.H. Commissioner

Expires 12:01 AM April 1, 1999
ISSUED April 1, 1998
REVISED July 14, 1998

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

Lab ID No.: 10795

Director: MR. JOHN BUCK
Lab Name: BUCK ENVIRONMENTAL LABORATORIES INC
Address : PO BOX 5150 3845 ROUTE 11 SO
CORTLAND NY 13045

is hereby APPROVED as an Environmental Laboratory for the category

ENVIRONMENTAL ANALYSES/AIR AND EMISSIONS

All approved subcategories and/or analytes are listed below:

Misc [illegible]neous Air : [illegible]ers Particulates	Metals I (ALL)	Purgeable Aromatics (ALL)	Purgeable Halocarbons (ALL)

Serial No.: 103163 Wadsworth Center

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DOH-3317 (3/97)

NEW YORK STATE DEPARTMENT OF HEALTH

BARBARA A. DEBUONO, M.D., M.P.H. Commissioner

Expires 12:01 AM April 1, 1999
ISSUED April 1, 1998
REVISED July 14, 1998

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

Lab ID No.: 10795

Director: MR. JOHN BUCK
Lab Name: BUCK ENVIRONMENTAL LABORATORIES INC
Address : PO BOX 5150 3845 ROUTE 11 SO
CORTLAND NY 13045

is hereby APPROVED as an Environmental Laboratory for the category

ENVIRONMENTAL ANALYSES/SOLID AND HAZARDOUS WASTE

All approved subcategories and/or analytes are listed below:

Miscellaneous :
- Asbestos in Friable Material
- Cyanide, Total
- Lead in Paint
- Hydrogen Ion (pH)
- Sulfide (as S)

Characteristic Testing :
- Corrosivity
- Ignitability
- Reactivity
- E.P. Toxicity - Metals Only

Purgeable Aromatics (ALL)
Chlor. Hydrocarbon Pesticides (ALL)
Haloethers (ALL)
Metals II (ALL)
Polynuclear Arom. Hydrocarbon (ALL)
Phthalate Esters (ALL)
Purgeable Halocarbons (ALL)
Chlorinated Hydrocarbons (ALL)
Metals I (ALL)
Nitroaromatics Isophorone (ALL)
Polychlorinated Biphenyls (ALL)
Priority Pollutant Phenols (ALL)

Serial No.: 103164

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NEW YORK STATE DEPARTMENT OF HEALTH

BARBARA A. DEBUONO, M.D., M.P.H. Commissioner

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ISSUED April 1, 1998
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Lab ID No.: 10795

Director: MR. JOHN BUCK
Lab Name: BUCK ENVIRONMENTAL LABORATORIES INC
Address : PO BOX 5150 3845 ROUTE 11 SO
CORTLAND NY 13045

is hereby APPROVED as an Environmental Laboratory for the category

CONTRACT LABORATORY PROTOCOL (CLP)

All approved subcategories and/or analytes are listed below:

P ganics | CLP Semi-Volatile Organics | CLP Volatile Organics

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OH-3317 (3/97)

APPENDIX F

CHAIN OF CUSTODY FORM

BUCK ENVIRONMENTAL LABORATORIES INC.
ACCREDITED ENVIRONMENTAL ANALYSIS

LABORATORY LOG NO. ____________

CHAIN OF CUSTODY RECORD

NOTE: *The information given on this form was supplied by the client and authorizes the Laboratory to proceed with analysis according to the* ***Standard Terms and Conditions*** *of Buck Environmental Laboratories, Inc. provided on the reverse side of this chain-of-custody. The client authorization signature acknowledges that the terms are acceptable and agreed to by the client.*

CLIENT		NORMAL QA/QC	
ADDRESS		PREMIUM QA/QC	
		NORMAL TURNAROUND	
PHONE NO.		EXPEDITE AT PREMIUM	
REPORT TO ATTN:		CLIENT AUTHORIZ. SIGN.	

PROJECT NAME ____________
PO NO. ____________
SAMPLED BY ____________

ANALYSIS REQUESTED

DATE	TIME	LOCATION											MATRIX (AIR, SOLID, WATER)	GRAB OR COMPOSITE	NUMBER OF CONTAINERS	VOLUME OF CONTAINERS	PRESERVATIVE USED

DATE	TIME	RELINQUISHED BY	ACCEPTED BY	ADDITIONAL COMMENTS
		1	1	
		2	2	
		3	3	
		4	4	