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REPORT OF
GROUNDWATER INVESTIGATION
ACTIVITIES AT
2-7 BADGER AVENUE
ENDICOTT, NEW YORK

JANUARY 1993

PREPARED FOR:

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EXECUTIVE SUMMARY

This report presents the results of sub-surface investigation activities carried out at the 2-7 Badger Avenue site in Endicott, New York in November 1992. The activities included the installation of four additional groundwater monitoring wells (for a total of 11 at the site), development, sampling and analysis of the new wells and sampling and analysis of the former wells. Stabilized groundwater depths were measured and the site was re-surveyed to obtain elevations of the well casings. The new wells were added to the site plan and isopotentiometric surfaces were plotted to obtain groundwater flow direction.

The conclusions made from the available data are that:

- although low concentrations of contaminants were found in the up-gradient well, the data generally support the previous conclusion that the point source of the contamination is in or near the 2 Badger Avenue building;
- contaminants were found in all of the new monitoring wells;
- the general chemical profile found in all samples is consistent, suggesting a single point source;
- groundwater flow is easterly, confirming previous conclusions; and
- the subsurface contaminant plume is larger than originally thought, underlying and extending an unknown distance east of the 7 Badger Avenue building.

It is recommended that:

- exploratory excavation be performed near the northeast corner of the 2 Badger Avenue building to determine if there is a point source for the contamination outside the building;
- an additional groundwater monitoring well be installed near Nanticoke Avenue (east of the site) to attempt to define the eastern edge of the contaminant plume;
- the monitoring wells be sampled and analyzed on a regular basis to develop trend information relative to movement of the contaminant plume; and
- a soil vapor extraction/sparging remediation system be installed at the site.

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BACKGROUND

Buck Engineering and Buck Environmental Laboratories, Inc. performed an environmental site assessment of real property located at 7 Badger Avenue in the Village of Endicott, New York in April 1991. The laboratory analysis of a groundwater sample obtained from a backhoe test pit excavated during the site assessment revealed moderate levels of trichloroethene (TCE).

Subsequent activities by Buck Engineering at this site during the spring and summer of 1992 included the installation of several groundwater monitoring wells, the laboratory analysis of samples from these wells and the excavation of two floor drain dry wells from within the building located at 2 Badger Avenue. The laboratory analysis of samples from the initial set of groundwater monitoring wells showed concentrations of TCE ranging from 0 to approximately 1,500 ug/L (micrograms per liter or parts per billion).

The conclusions drawn from the above activities was that:

- the groundwater beneath the 2 and 7 Badger Avenue sites flows in a easterly direction with some variability, depending upon the season;
- the source of the groundwater contamination was believed to be the dry wells located in the 2 Badger Avenue building; and that
- additional subsurface investigation was required to obtain an up-gradient groundwater sample and additional down-gradient groundwater samples.

Four (4) additional groundwater monitoring wells were installed around the property in November 1992. This report provides information on the installation of these monitoring wells, the laboratory analysis of samples from the wells, the conclusions drawn from the latest site information, and recommendations for future action.

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METHOD

The following activities were performed in the site investigation activities described in this report:

1. The approval of three (3) property owners adjacent to the 2 and 7 Badger Avenue sites was obtained for the installation of the new groundwater monitoring wells.
2. Four (4) new groundwater monitoring wells were installed at the site as follows:
 - an up-gradient monitoring well (MW-7) was installed on the west side of the 2 Badger Avenue property; and
 - three (3) down-gradient monitoring wells were installed on the east side of the 7 Badger Avenue property.

Personnel from Buck Engineering were on-site during well installation equipped with an HNu photoionization detector to obtain information from the split spoon samples and to develop drilling logs.

3. The four new monitoring wells were developed and all of the wells were sampled.
4. Elevations of all monitoring well casings were determined and the water depths were measured after the groundwater levels were allowed to reach equilibrium.
5. Groundwater samples were analyzed using EPA method 8021 via gas chromatography for volatile organic compounds.
6. The site plan was revised to show the locations of the new monitoring wells, groundwater flow direction, and a contaminant concentration profile.

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RESULTS

1. Approval for the monitoring well installations was obtained from:
 - MW-7: Mr. Frank Jones, Jones Marinich, Inc., 6 Badger Avenue, Endicott, NY;
 - MW-8/9: Mr. Orlando Ciotoli, 8 South Nanticoke Avenue, Endicott, NY; and
 - MW-10: Mrs. Anita Clubb, South Nanticoke Avenue, Endicott, NY.
2. The four new groundwater monitoring wells were installed by C.J. Martin's Son Well Drilling of Binghamton, New York on November 18 and 19, 1992. Personnel of Buck Engineering were on-site during the drilling to observe the well installation procedures and obtain drilling log information. Drilling logs from these well installations are provided in an appendix. Information obtained during the drilling is provided in the following paragraphs.

MW-7. MW-7 was installed in a location west of, and hydraulically up-gradient from, the 2 Badger Avenue building. The well is located on the north side of the building located directly behind 2 Badger Avenue that is occupied by Jones-Marinich, Inc. An HNu photoionization detector was used to screen the split-spoon samples obtained during well installation. HNu readings were taken of the raw split-spoons and of head-space samples obtained from the spoons with the following results:

<u>Split-Spoon Depth</u>	<u>HNu Readings</u>	
	<u>Raw Split Spoon</u>	<u>Head Space</u>
Background	1.5-3.0 ppm	
5 - 7 ft.	2.0 ppm	ND
10 - 12 ft.	1.6 ppm	ND
15 - 17 ft.	1.2 ppm	ND
20 - 22 ft.	1.4 ppm	5.0 ppm

As noted above, no NHu meter readings that significantly exceeded background levels were found in any of the raw split spoon samples. Low level concentrations of organic vapors were detected in the head-space sample from the 20 to 22 ft. split spoon. Groundwater was encountered at 18 ft. and boring was terminated at 23 ft. A two-inch PVC monitoring well with 10 feet of well screen with 0.02-inch slots was installed. The well was terminated at the surface and equipped with a locking cap and flush-mounted curb box.

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Results (Con't.)

MW-8. MW-8 was installed in a location east of, and hydraulically down-gradient from, the 2 Badger Avenue building. The well is located on the north side of the 7 Badger Avenue building in the driveway of the Cider Mill Theater. An HNu photoionization detector was used to screen the split-spoon samples obtained during well installation. HNu readings were taken of the raw split-spoons and of head-space samples obtained from the spoons with the following results:

<u>Split-Spoon Depth</u>	<u>HNu Readings</u>	
	<u>Raw Split Spoon</u>	<u>Head Space</u>
Background	1.0-4.0 ppm	
5 - 7 ft.	3.0 ppm	ND
10 - 12 ft.	2.4 ppm	ND
15 - 17 ft.	1.0 ppm	1.6 ppm

As noted above, no NHu meter reading exceeding background levels were found in any of the raw split spoon or head space samples. Groundwater was encountered at 13 ft. and boring was terminated at 18 ft. A two-inch PVC monitoring well with 10 feet of well screen with 0.02-inch slots was installed. The well was terminated at the surface and equipped with a locking cap and flush-mounted curb box.

MW-9. MW-9 was installed in a location east of, and hydraulically down-gradient from, the 2 Badger Avenue building. The well is located on the north side of the 7 Badger Avenue building in the driveway of the Cider Mill Theater. An HNu photoionization detector was used to screen the split-spoon samples obtained during well installation. HNu readings were taken of the raw split-spoons and of head-space samples obtained from the spoons with the following results:

<u>Split-Spoon Depth</u>	<u>HNu Readings</u>	
	<u>Raw Split Spoon</u>	<u>Head Space</u>
Background	1.0-3.0 ppm	
5 - 7 ft.	1.6 ppm	ND
10 - 12 ft.	1.8 ppm	ND
15 - 17 ft.	4.2 ppm	ND

As noted above, the only NHu meter reading exceeding background levels was found on the raw split spoon sample from the 15 to 17 ft. depth. Groundwater was encountered at 15.5 ft. and boring was terminated at 20 ft. A two-

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inch PVC monitoring well with 10 feet of well screen with 0.02-inch slots was installed. The well was terminated at the surface and equipped with a locking cap and flush-mounted curb box.

MW-10. MW-10 was installed in a location east of, and hydraulically down-gradient from, the 2 Badger Avenue building. The well is located on the east side of the 7 Badger Avenue building in the parking lot of an apartment building. An HNu photoionization detector was used to screen the split-spoon samples obtained during well installation. HNu readings were taken of the raw split-spoons and of head-space samples obtained from the spoons with the following results:

<u>Split-Spoon Depth</u>	<u>HNu Readings</u>	
	<u>Raw Split Spoon</u>	<u>Head Space</u>
Background		ND
5 - 7 ft.	ND	ND
10 - 12 ft.	ND	ND
15 - 17 ft.	ND	ND

As noted above, no significant NHu meter readings were found in any of the raw split spoon or head space samples. Groundwater was encountered at 13.5 ft. and boring was terminated at 20 ft. A two-inch PVC monitoring well with 10 feet of well screen with 0.02-inch slots was installed. The well was terminated at the surface and equipped with a locking cap and flush-mounted curb box.

3. The subsurface strata characterization as interpreted from split spoon samples taken during the installation of monitoring wells MW-7, MW-8, MW-9 and MW-10 is as follows.

In all cases, the strata encountered during drilling activities consisted of unconsolidated material. The typical stratigraphic sequence observed during the well installations was: dark top soil in the first foot; a reddish brown sand and gravel mixture with some black organic deposits to approximately 18 feet; after this, water was encountered within a brown colored silty clay. Soil borings were terminated at approximately 20 feet within the silty clay material. This stratigraphic sequence is indicative of an ancient river bed and flood plain deposits that are typical of low relief areas adjacent to the Susquehanna River near Endicott.

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4. The elevations of all monitoring well casings at the site were obtained and stabilized groundwater depths were recorded. This information was used to update the site plan and determine groundwater flow direction. A revised site plan is provided in an appendix.
5. Well coordinates, contaminant levels, and groundwater elevations were analyzed using SurferTM, a hydrogeologic software program by Golden Software, Inc.
6. The groundwater samples obtained from the monitoring wells were analyzed via gas chromatography using EPA Method 8021 for volatile organic compounds with the results provided in tabular form below. The laboratory reports are provided in an appendix.

<u>Monitoring Well</u>	<u>Analytical Results</u>
MW-1	Trichloroethene 109 ug/L
MW-2	Trichloroethene 1 ug/L
MW-3	ND
MW-4	cis-1,2-Dichloroethene 6.9 ug/L Trichloroethene 5.8 ug/L Vinyl chloride 2.1 ug/L
MW-5	cis-1,2-Dichloroethene 7.8 ug/L Trichloroethene 41.8 ug/L
MW-6	cis-1,2-Dichloroethene 1,450 ug/L Trichloroethene 7,860 ug/L
MW-7	cis-1,2-Dichloroethene 40.4 ug/L trans-1,2-Dichloroethene 1.2 ug/L Trichloroethene 21.7 ug/L
MW-8	cis-1,2-Dichloroethene 608 ug/L Trichloroethene 241 ug/L
MW-9	cis-1,2-Dichloroethene 150 ug/L Trichloroethene 88.1 ug/L
MW-10	cis-1,2-Dichloroethene 53.3 ug/L Vinyl chloride 45.2 ug/L
RW-1	cis-1,2-Dichloroethene 2,240 ug/L Trichloroethene 572 ug/L

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CONCLUSIONS

The following conclusions are made based on previous and current subsurface investigations at the 2 and 7 Badger Avenue site:

1. TCE and related contaminants were found in the sample from the up-gradient well (MW-7) at concentrations significantly below those found in some down-gradient wells. This difference in concentration provides strong evidence that the point source of the TCE contamination was not a location hydraulically up-gradient from the 2 Badger Avenue property. The source of the contaminants in MW-7 is unknown but is believed to be the result of contaminant diffusion from a down-gradient source at a rate exceeding the groundwater flow velocity.
2. The groundwater samples from the site have consistent chemical profiles, indicating that the contamination originated from a single point source. The primary contaminant is believed to have been Trichloroethene. The cis-1,2-Dichloroethene is believed to be a first level degradation product of Trichloroethene and the vinyl chloride is believed to be a second level degradation product of Trichloroethene.
3. A plot of the potentiometric surfaces indicates groundwater flow direction in a generally easterly direction, confirming conclusions made as a result of previous investigations at the site.
4. The presence of the TCE and related contaminants in the new down-gradient wells indicates a larger contaminant plume than originally thought. The presence of vinyl chloride in the most remote extents of the plume indicates that the plume is aged. The east/west axis of the plume is typically elongated. The most recent data suggests that the area of highest contamination is slightly to the north of the 2 Badger Avenue building. While this does not negate the previous conclusion that the point source of the contamination was the former floor drain dry wells, it suggests the possibility of an additional contaminant source or a subsurface hydraulic connection between the floor drains and the area north of the building.
5. While the latest monitoring wells provided additional information regarding the shape and extent of the contaminant plume, the eastern extent of the plume remains unknown.

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RECOMMENDATIONS

The following recommendations are made for additional subsurface investigation and remediation action at the Badger Avenue site:

1. It is recommended that a soil vapor extraction/sparging system be installed in the area of highest contaminant concentration, near the northeast corner of the 2 Badger Avenue building. The system would consist of 3 to 4 new sparging wells surrounding a soil vapor extraction well. It is believed that RW-2 can be used as the extraction well. A general estimate of the cost to install and start-up the system is in the range of \$27,000.
2. It is recommended that an exploratory excavation be performed near the northeast corner of the 2 Badger Avenue building to determine if there is a recognizable source of contamination in this general area. This activity can be conducted concurrently with installation of an soil vapor extraction system.
3. It is recommended that one additional groundwater monitoring well be installed directly down-gradient from the east/west axis of the contaminant plume, near Nanticoke Avenue. The purpose of this well would be to obtain groundwater data to further define the eastern edge of the contaminant plume.
4. It is recommended that the existing groundwater monitoring wells be sampled and analyzed on a regular basis to develop trend information relative to the movement of the contaminant plume.

A general discussion of future proposed site activities and a general schedule of events is provided on the following pages.

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PROPOSED BADGER AVENUE SITE REMEDIATION ACTIVITIES

Backhoe Test Pit

A backhoe test pit is to be excavated near the northeast corner of the 2 Badger Avenue building. The purpose of the excavation is to potentially identify an additional point source of the subsurface contaminants and to install a casing for future use as either a sparging point or a vapor extraction well.

The excavation would be monitored with an HNu photoionization detector to check for the presence of volatile organic compounds. Based on visual observation during the excavation and the HNu meter readings, a determination will be made as to the need for sampling soil and/or groundwater for laboratory examination. Groundwater samples taken from the excavation would be analyzed via EPA Method 8021 and soil samples would be analyzed for eight toxic metals using the EPA TCLP protocol.

A 2 in. diameter PVC casing and well screen will be placed in the excavation with the bottom of the screen located approximately 2 ft. into the groundwater and extending approximately 2 ft. above groundwater. The excavation will then be back-filled with the excavated soil. If it is determined that no soil and water samples are required for analysis, the excavation will be back-filled immediately.

The estimated time frame for completing the work is two to four weeks from ground thaw (starting approximately March 31).

Soil Vapor Extraction System Feasibility Study

The proposed method of site remediation is a soil vapor extraction and air sparging system located at the point of highest contaminant concentration, which appears to be near the northeast corner of the 2 Badger Avenue building.

Two existing wells, MW-6 and RW-1, are expected to be used as vapor extraction points. A third well may be available for vapor extraction depending upon the results of the backhoe pit excavation.

A feasibility study of the proposed system would be conducted using the following methodology:

- a. Drive three soil vapor probes radially from RW-1, to a depth of 1 to 2 feet above the water table. Space the probes at 4 ft., 8 ft., and 12 ft. from RW-1.

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Proposed Badger Avenue Remediation Activities (Con't.)

Soil Vapor Extraction System Feasibility Study (Con't.)

- b. Connect a vacuum source to RW-1 and develop approximately 50 inches of water vacuum.
- c. Connect a vacuum gage to each vapor probe and measure vacuum relative to atmosphere.
- d. Plot the vacuum values and perform a regression analysis to determine maximum effective radius of influence of the vapor extraction system operating at 50 inches of water vacuum. (The effective radius of influence is defined as the maximum distance that the vapor extraction system can exert at least 0.02 inches of water vacuum.)
- e. Without sparging (i.e., introducing air into the groundwater), develop 30 inches of water vacuum on RW-1 for a period of 15 minutes. At the end of 15 minutes, while continuing to pull 30 inches of water vacuum, obtain a sample of the extraction system emission. The gas would be analyzed for volatile organic compounds using NYSDOH Method 311-2 via GC/MS.

The findings of the study would then be summarized and reviewed.

Concurrent with the above activities, an investigation would be made into NYSDEC air permitting regulations and their applicability to this project.

The estimated time-frame for completing the work of this section is approximately 8 weeks with the objective of finishing the study by April 15.

Design and Install New System

If it is found to be feasible, a soil vapor and air sparging system would then be designed and installed based on the results of the study.

Preliminary expectations are that the vapor extraction system will consist of 2 vapor extraction wells (MW-6 and RW-1) and 3 to 4 air sparging points. One additional vapor extraction well and 1 or 2 additional air sparging points may be added to the system if the results of the backhoe test pit warrant such an addition. System components will be ordered based on final system design.

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Proposed Badger Avenue Remediation Activities (Con't.)

Design and Install New System (Con't.)

Activities related to the system installation are as follows:

1. Install air sparging wells.
2. Excavate trenches from the wells to the 2 Badger Avenue building for the installation of piping.
3. Install regenerative blower, air compressor, filter, water-trap, and gaging.
4. Modify building interior to house equipment. The installation of space heating may be required.

A granular activated carbon filter will be installed to remove volatile organic components from the soil vapor extraction system gases prior to discharge. A NYSDEC permit application will be prepared for this emission dependent upon levels determined during the start-up phase.

The estimated time-frame to complete the work of this section is 8 weeks with an estimated start up date of June 1, 1993.

Ongoing Activities

After system installation is complete and has been placed in operation, all monitoring wells will be sampled on a quarterly basis with the samples analyzed via EPA Method 8021 with results reported to the client and the NYSDEC. System operation will be checked on a weekly basis. Logs will be maintained on the monitoring well water levels, pressure gage readings, and air flows. (It should be noted that the monitoring tasks will be conducted every day for the first two weeks of operation of the system.)

Air samples will be taken on a monthly basis from all well points and at the system exhaust to atmosphere.

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Proposed Badger Avenue Remediation Activities (Con't.)

Proposed Badger Avenue Site Remediation Schedule and Cost

	<u>Estimated Cost</u>
1. Backhoe Test Pit	\$1,500
Location: Northeast of 2 Badger Ave building	
Operations: - Move existing soil pile - Have HNu meter on-site - Collect soil and water samples (based on HNu findings) - Install 4" vapor extraction casing in test pit at water table	
Estimated Time-Frame: 2-4 weeks after ground thaw (starting after March 31)	
Submit Air Permit Application (if required)	
2. Install new groundwater monitoring well	1,500
Location: East of & Badger Avenue, near Nanticoke Avenue	
Activities: Install monitoring well Develop and sample well Analyze sample Establish groundwater elevation	
Estimated Time-Frame: 4 weeks	
3. Perform Vapor Extraction Feasibility Study	3,500
Estimated Time-Frame: 8 weeks beginning now (Complete by April 15)	

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Proposed Badger Avenue Remediation Activities (Con't.)

Badger Ave Site Remediation Schedule and Cost (Con't.)

4. Design and Install New System

A. System Description - Vapor Extraction at
2 wells and air sparge at 4 points.

1. Backhoe, install plumbing to building	2,000
2. Install 3 to 4 sparging wells	4,000
3. Make partitioned space in 2 Badger Avenue building to house SVE equipment	1,800
4. Install blower, compressor, filter water-trap, gaging, electrical (parts)	6,000
(labor)	3,000
5. System start-up and lab work	2,000
6. Carbon canister (parts)	1,000
(labor)	750

5. Ongoing Activities

A. Sample and analyze all wells quarterly via
EPA Method 8021 and report results to
client and NYSDEC

\$1,900

B. Operate Vapor Extraction/Sparge System

1. Weekly - Check System, clean
filters, drain moisture trap \$400/mth

a. Record water, air, flows

b. Maintain logs of operating activities

(Note: These activities shall be conducted daily
during the first 2 weeks of operation)

2. Monthly \$500/mth

a. Take air samples from effluent
and both well points

b. Sample and analyze RW-1

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APPENDIX A

LABORATORY REPORTS

The laboratory reports that resulted from the analysis of samples obtained from the groundwater monitoring wells at the Badger Avenue site are provided on the following pages.

BUCK ENVIRONMENTAL
LABORATORIES, INC.3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-1

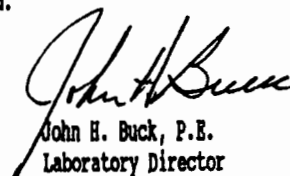
COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	ND
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	109.
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 10.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

BUCK ENVIRONMENTAL
LABORATORIES, INC.3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-2


COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	ND
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	1.0
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 1.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

**BUCK ENVIRONMENTAL
LABORATORIES INC.**

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-3


COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	ND
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 1.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

BUCK ENVIRONMENTAL
LABORATORIES, INC.

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-4


COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	6.9
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	5.8
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	2.1
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "n")	-

ND indicates that no amount greater than 1.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

**BUCK ENVIRONMENTAL
LABORATORIES INC.**

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-5

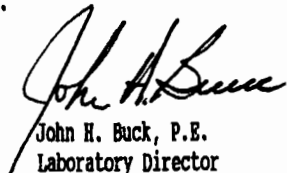
COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	7.8
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	*
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	41.8
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "n")	-

ND indicates that no amount greater than 1.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795



John H. Buck, P.E.
Laboratory Director

**BUCK ENVIRONMENTAL
LABORATORIES INC.**3845 ROUTE 11 SOUTH, P.O. BOX 5150
CORTLAND, N.Y. 13045 607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-6

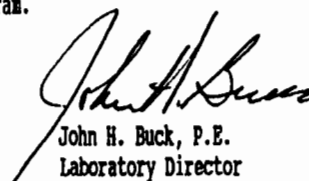
COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	1,450
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	7,860
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 100 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795



John H. Buck, P.E.
Laboratory Director

BUCK ENVIRONMENTAL
LABORATORIES, INC.3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUREY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-7


COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	40.4
trans-1,2-Dichloroethene	1.2
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	*
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	1.7
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	21.7
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 1.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

BUCK ENVIRONMENTAL
LABORATORIES INC.

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-8

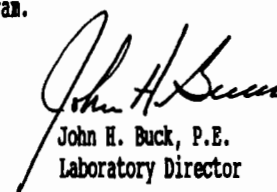
COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	608.
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	*
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	241.
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 10.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

BUCK ENVIRONMENTAL
LABORATORIES INC.

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-9

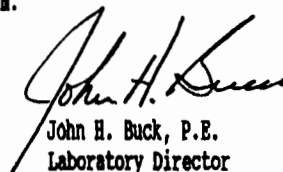
COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	150.
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	*
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	88.1
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 10.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

**BUCK ENVIRONMENTAL
LABORATORIES INC.**

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - MW-10

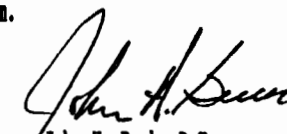
COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	53.3
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	*
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	45.2
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 10.0 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

BUCK ENVIRONMENTAL
LABORATORIES INC.

ACCREDITED ENVIRONMENTAL ANALYSIS

3845 ROUTE 11 SOUTH,
CORTLAND, N.Y. 13045P.O. BOX 5150
607-753-3403VOLATILE ORGANIC COMPOUNDS
(BY EPA 8021)Client: TOUHEY ASSOCIATES
Site: 7 Badger Ave.
Endicott, NY 13760Lab Log No. 9212125
Report Date: 12/22/92
Date Sampled: 12/10/92
Date of Analysis: 12/14/92
Sampled By: Buck Labs

Sample: Water - RW


COMPOUND	ug/L
Benzene	ND
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
cis-1,2-Dichloroethene	2,420
trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND

COMPOUND	ug/L
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene chloride	ND
Naphthalene	ND
n-Propylbenzene	ND
Styrene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlorobenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	572.
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl chloride	ND
o-Xylene	ND
m-Xylene	ND
p-Xylene (coelutes with "m")	-

ND indicates that no amount greater than 100 ug/L was detected.

I certify that the method used in this testing complies with EPA Method 8021 and requirements of the New York State Health Department Environmental Laboratory Approval Program.

ELAP NO. 10795


John H. Buck, P.E.
Laboratory Director

REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

APPENDIX B

SITE PLAN

A revised site plan showing the location of all groundwater monitoring wells and other pertinent features of the Badger Avenue site is provided on the following page.

REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

APPENDIX C

DRILLING LOGS

The drilling logs resulting from the installation of the four new groundwater monitoring wells at the Badger Avenue site are provided on the following pages.

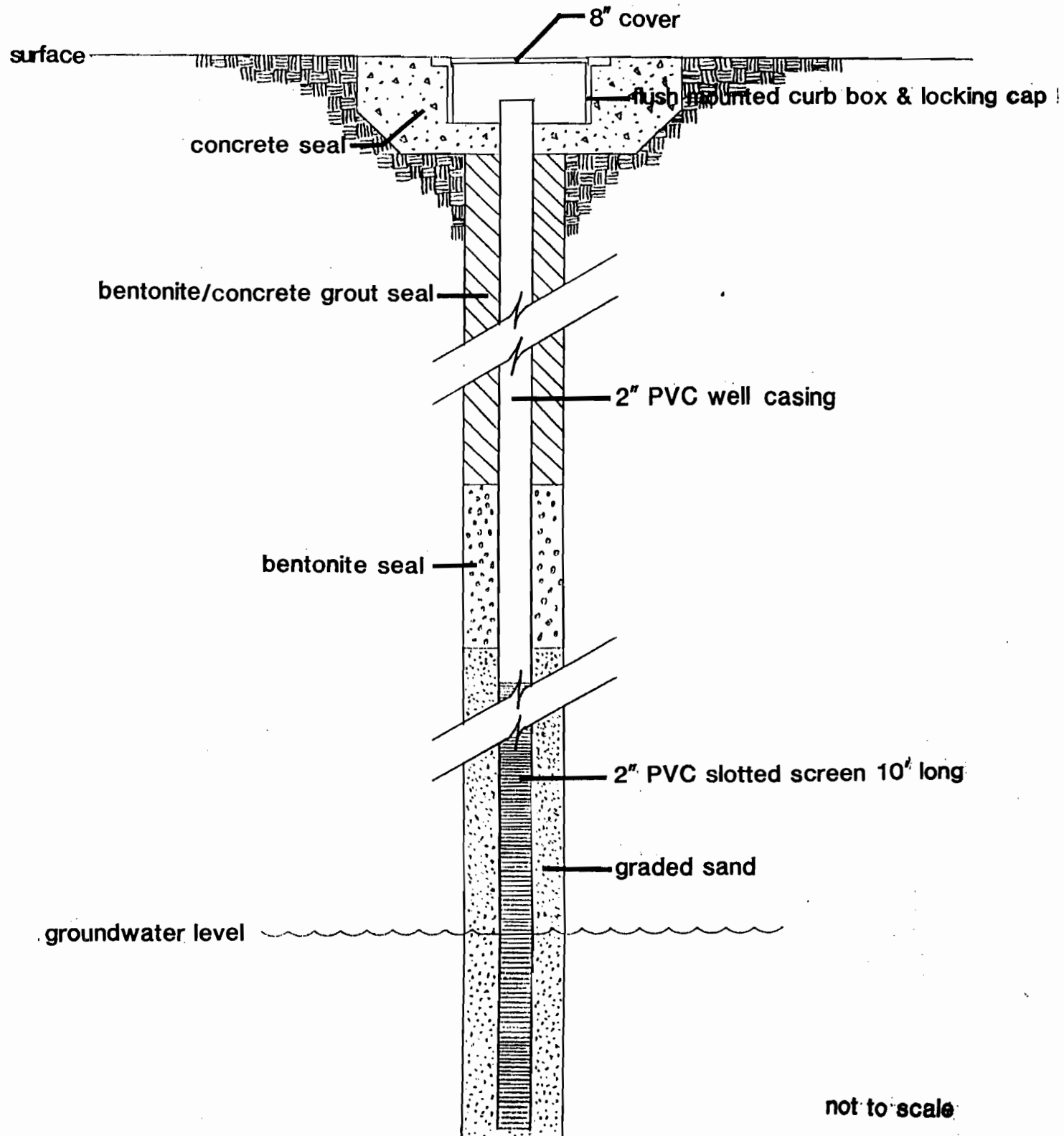
BUCK ENGINEERING
& ENVIRONMENTAL LABORATORY

CONSULTING ENGINEERS & ENVIRONMENTAL ANALYSIS

100 TOMPKINS ST. • CORTLAND, N.Y. 13045

607-753-3403

TYPICAL MONITORING WELL DETAIL



REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

DRILLING/BORING LOG
MW-7

Client: Touhey Associates
Pine West Plaza, Building 2
Washington Avenue Extension
Albany, NY

Project: Badger Avenue, Endicott, NY

Boring No: Monitoring Well #7
Location: Approximately 15 ft. north of the Jones-
Marinich building located at 6 Badger Ave.
Date Started: November 18, 1992
Date Completed: November 18, 1992
Driller: C.J. Martin's Son Well Drilling
Binghamton, NY
Auger Size: 4 1/4" I.D. Hollow Stem Augers
Soil Sampler: 2" O.D. Split Spoon
Sample Hammer: 140 lb. 30 in. Fall

Sample No.	Depth	Blows on Hammer			
		0' to 0.5'	0.5' to 1.0'	1.0' to 1.5'	1.5' to 2.0'
1	5.0'-7.0'	6	6	4	2
	Dark soil with gravel, ash-like black soil, brown clay. No odor.				
2	10.0'-12.0'	2	3	4	11
	Red-brown sand and gravel, some ash-like black soil. No odor.				
3	15.0'-17.0'	3	2	5	18
	Red-brown sand and gravel, moist. No odor.				
4	20.0'-22.0'	13	12	4	5
	Grey-brown sand and gravel. Wet. No odor.				

Groundwater encountered at 18.0 ft.
Boring terminated at 23 ft.
Observations and data recording by Daniel Shearer of Buck
Environmental Laboratories, Inc.

REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

DRILLING/BORING LOG
MW-8

Client: Touhey Associates
Pine West Plaza, Building 2
Washington Avenue Extension
Albany, NY

Project: Badger Avenue, Endicott, NY

Boring No: Monitoring Well #8

Location: Approximately 15 ft. north of the 7 Badger
Ave. located in the driveway of the Cider
Mill Playhouse.

Date Started: November 18, 1992

Date Completed: November 18, 1992

Driller: C.J. Martin's Son Well Drilling
Binghamton, NY

Auger Size: 4 1/4" I.D. Hollow Stem Augers

Soil Sampler: 2" O.D. Split Spoon

Sample Hammer: 140 lb. 30 in. Fall

Sample No.	Depth	Blows on Hammer			
		0' to 0.5'	0.5' to 1.0'	1.0' to 1.5'	1.5' to 2.0'
1	5.0'-7.0'	1	3	4	4
	Ash-like black soil, brown clay, sand and gravel. No odor.				
2	10.0'-12.0'	5	15	21	13
	Brown sand and gravel. No odor.				
3	15.0'-17.0'	7	5	8	10
	Brown sand and gravel, brown clay. No odor.				

Groundwater encountered at 13.0 ft.

Boring terminated at 18 ft.

Observations and data recording by Daniel Shearer of Buck
Environmental Laboratories, Inc.

REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

DRILLING/BORING LOG

MW-9

Client: Touhey Associates
Pine West Plaza, Building 2
Washington Avenue Extension
Albany, NY

Project: Badger Avenue, Endicott, NY

Boring No: Monitoring Well #9

Location: Approximately 15 ft. east of the 7 Badger
Ave. building in the Cider Mill Theater
parking lot.

Date Started: November 18, 1992

Date Completed: November 18, 1992

Driller: C.J. Martin's Son Well Drilling
Binghamton, NY

Auger Size: 4 1/4" I.D. Hollow Stem Augers

Soil Sampler: 2" O.D. Split Spoon

Sample Hammer: 140 lb. 30 in. Fall

Sample No.	Depth	Blows on Hammer			
		0' to 0.5'	0.5' to 1.0'	1.0' to 1.5'	1.5' to 2.0'
1	5.0'-7.0'	8	5	6	7
	Brown sand and gravel. No odor.				
2	10.0'-12.0'	6	9	9	13
	Red-brown sand and gravel. No odor.				
3	15.0'-17.0'	8	6	7	9
	Red-brown sand and gravel, brown clay. No odor.				

Groundwater encountered at 15.5 ft.

Boring terminated at 20 ft.

Observations and data recording by Daniel Shearer of Buck
Environmental Laboratories, Inc.

REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

DRILLING/BORING LOG
MW-10

Client: Touhey Associates
Pine West Plaza, Building 2
Washington Avenue Extension
Albany, NY

Project: Badger Avenue, Endicott, NY

Boring No: Monitoring Well #10
Location: Approximately 5 ft. east of the 7 Badger Ave.
building in the parking lot of an apartment
building located on Nanticoke Ave.
Date Started: November 19, 1992
Date Completed: November 19, 1992
Driller: C.J. Martin's Son Well Drilling
Binghamton, NY
Auger Size: 4 1/4" I.D. Hollow Stem Augers
Soil Sampler: 2" O.D. Split Spoon
Sample Hammer: 140 lb. 30 in. Fall

Sample No.	Depth	Blows on Hammer			
		0' to 0.5'	0.5' to 1.0'	1.0' to 1.5'	1.5' to 2.0'
1	4.5'-6.5'	4	6	6	15
		Brown sand and gravel. No odor.			
2	9.5'-11.5'	15	23	27	31
		Brown sand and gravel. No odor.			
3	14.5'-16.5'	7	33	5	10
		Red-brown sand and gravel, moist. No odor.			
4	19.5'-21.5'	2	3	3	6
		Brown clay. Moist. No odor.			

Groundwater encountered at 13.0 ft.
Boring terminated at 20 ft.
Observations and data recording by Eric Mosen of Buck
Environmental Laboratories, Inc.

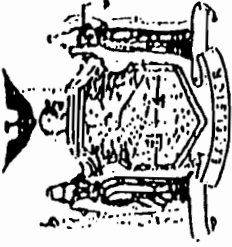
REPORT OF GROUNDWATER INVESTIGATION
BADGER AVE, ENDICOTT, NY - JAN 1993

APPENDIX D

CERTIFICATION

Copies of the appropriate engineering and laboratory
certifications are provided on the following pages.

EDUCATION DEPARTMENT



BE IT KNOWN THAT

JOHN H. BUCK

HAVING GIVEN SATISFACTORY EVIDENCE OF THE COMPLETION OF PROFESSIONAL
AND OTHER REQUIREMENTS PRESCRIBED BY LAW IS QUALIFIED TO PRACTICE AS A

PROFESSIONAL ENGINEER

IN THE STATE OF NEW YORK

IN WITNESS WHEREOF THE EDUCATION DEPARTMENT GRANTS THIS LICENSE
UNDER ITS SEAL AT ALBANY, NEW YORK
THIS TWENTY-FIRST DAY OF APRIL, 1978.

LICENSE NUMBER

55460

Jordan M. Ambrose
PRESIDENT OF THE UNIVERSITY
AND COMMISSIONER OF EDUCATION

Stanley M. Kuenwald
EXECUTIVE SECRETARY

NEW YORK STATE DEPARTMENT OF HEALTH

DAVID AXELROD, M. D. COMMISSIONER



Expires 12:01 AM April 1, 1993
ISSUED April 1, 1992
REVISED June 5, 1992

INTERIM 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 3345 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:

Hydrocarbon Pesticides :	Wastewater Metals II :	Wastewater Miscellaneous :	Mineral :
4-DDD	Aluminum, Total	Cyanide, Total	Alkalinity
4-DDX	Arsenic, Total	Color	Calcium Hardness
4-DDI	Beryllium, Total	Phenols	Chloride
lpha-PHC	Mercury, Total	Oil & Grease Total Recoverable	Fluoride, Total
ldrin	Antimony, Total	Hydrogen Ion (pH)	Sulfate (as SO4)
eta-PHC	Selenium, Total	Temperature	Hardness, Total
bioidane Total	Zinc, Total	Organic Carbon, Total	Nutrient :
elta-PHC	Wastewater Bacteriology :	Chlorophenoxy Acid Pesticides :	Kjeldahl Nitrogen, Total
ieldrin	Coliform, fecal	2,4-D	Ammonia (as N)
ndrin aldehyde	Coliform, Total	2,4,5-TP (Silvex)	Nitrate (as N)
ndrin	Wastewater Metals III :	Benzenidines (All)	Phosphorus, Total
ndosulfan I	Thallium, Total	Chlorinated Hydrocarbons (All)	Demand (All)
ndosulfan II	matesters (All)	Wastewater Metals I (All)	Nitroaromatics and Isophorone (All)
ndosulfan sulfate	Nitrosamines (All)	Polynuclear Aromatics (All)	Polychlorinated Biphenyls (All)
eptachlor	Phthalate Esters (All)	Priority Pollutant Phenols (All)	Purgeable Aromatics (All)
eptachlor epoxide	Purgeable halocarbons (All)	Residue (All)	TCLP Additional Compounds (All)
indane			
ethoxychlor			
oxaphene			

Lawrence S. Sturman

Serial No.: 12041

Lawrence S. Sturman, M.D., Ph.D., Acting Director
~~Lawrence S. Sturman, M.D., Ph.D., Director~~
 Wadsworth Center for Laboratories and Research

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 Must be conspicuously posted. Valid certificate has a red serial number.