BUCK ENVIRONMENTAL SERVICES

REPORT OF SUBSURFACE INVESTIGATION AT THE MONARCH CHEMICAL SITE PRENTICE ROAD VESTAL, NEW YORK

MAY 1993

PREPARED FOR:

MR. DONALD BULMAN
DIRECTOR OF ENGINEERING SERVICES
TOWN OF VESTAL
VESTAL, NEW YORK

PREPARED BY:

BUCK ENGINEERING
P.O. 5150
ROUTE 11 SOUTH
CORTLAND, NEW YORK 13045
607-753-3403

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TEST PIT SAMPLING - MAY 1993
MONARCH CHEMICAL SITE - PRENTICE ROAD, VESTAL, NY

BACKGROUND AND INTRODUCTION

The Monarch Chemical site is located on Prentice Road in the Town of Vestal. The site is listed by regulatory agencies as an inactive hazardous waste disposal site and has been assigned a classification which indicates that the site conditions represent a significant threat to the public health or environment. The site has been assigned NYSDEC site code 704003 and EPA I.D.# NYD010780146. Unknown quantities of trichloroethylene (TCE) have been disposed of at the site. Groundwater contamination has been detected in groundwater in Town of Vestal well 4-2 which is located approximately 250 ft. north of the site. The NYSDEC has indicated that it is evaluating the possibility of re-classifying the site to a lower category indicating that the site is properly closed but requires continued monitoring.

Buck Engineering was retained by the Town of Vestal to perform a subsurface investigation at the Monarch Chemical site. The overall objective of the investigation was to obtain current information regarding subsurface contamination with a view toward providing information which would support the re-classification of the site.

The Town of Vestal provided copies of previous engineering studies conducted at the Monarch Chemical and adjacent sites. A previous hydrogeological investigation of organic contamination at the site was conducted by Parratt-Wolff, Inc. in 1980 that included the installation of two monitoring wells at the site. The Parratt-Wolff report concluded that some level of contamination was present in the soil and groundwater. In addition, a groundwater exploration investigation was conducted for the Town of Vestal Water District No. 4 by R.J. Martin, P.E in 1983. The Martin report involved a groundwater investigation of Town of Vestal water wells located in the vicinity of the Monarch Chemical site.

During the current investigation, several test pits were excavated at the Monarch Chemical site in positions believed to be the locations of a former waste disposal dry well. The purpose of the excavations was to obtain soil samples for laboratory analysis. In addition, an objective of the site activity was to locate the groundwater monitoring wells previously installed. The well casings have been covered with soil and gravel and their exact locations were not known. One of the two monitoring wells was re-discovered during the excavation activities.

The Monarch Chemical site is rectangular in shape, is of approximately one acre in size and is located on the west

Background and Introduction (Con't.)

side of Prentice Road, approximately 1/2 mile north of the junction of Prentice Road and Old Vestal Road. The site investigation work took place on the western section of the property, in an unpaved parking area at the rear of the building occupying the site.

The on-site work was conducted on April 27, 1993. Gary Dyer Excavating was retained to provide excavation services. Personnel from Buck Engineering were on-site to provide excavation oversight, collect soil samples, and monitor ambient atmospheric conditions. The soil samples were analyzed via gas chromatograph using EPA Method 8010 for halogenated organic compounds. In addition, one soil sample was analyzed by SW846-9060 for total organic compounds. The monitoring well was purged and sampled on April 28, 1993 and analyzed via gas chromatograph using EPA Method 601 for halogenated organic compounds.

Mr. Scott Rodabaugh of the Kirkwood office of the NYSDEC was on-site during the excavation activities. Mr. Donald Bulman of the Town of Vestal was also on-site during these activities.

This report summarizes on-site activities and the analytical results for the Monarch Chemical project. The following section provides an executive summary. Subsequent sections include a description of on-site activities, laboratory and on site results, and a conclusions and recommendations section. Laboratory reports, a site plan, a work plan, a site specific health and safety plan and credentials are provided in appendices.

EXECUTIVE SUMMARY

Buck Engineering was retained by the Town of Vestal to perform exploration and sampling activities at the former Monarch Chemical site located on Prentice Road in the Town of Vestal. The site is currently listed by both the NYSDEC and the USEPA as an inactive hazardous waste disposal site as a result of barrel cleaning operations conducted at the site. The residue from the cleaning operation was discharged to the subsurface soils.

Five (5) test pits were excavated in areas of the property suspected of being a former drainage area and leach pit. The purpose of the test pits was to obtain soil samples for laboratory analysis and to observe subsurface conditions in the test pit areas. In addition to the soil samples, a groundwater sample from a pre-existing groundwater monitoring well was collected. A total of four soil samples and one water sample were obtained. The results of the laboratory analyses provide evidence that both the soil and groundwater beneath the site are contaminated with chlorinated solvents.

It is recommended that repairs be made to the monitoring well re-discovered at the site and that samples from the well be analyzed on a regular basis in future.

It is recommended that the soil with significant levels of contamination in the immediate area of the former dry well be excavated and properly disposed of. The removal of this contaminated soil will prevent further contaminants from reaching the groundwater and migrating toward the Well 4-2. The removal of this soil will also speed the clean-up of the site.

After the highly contaminated soil is removed from the site, it is recommended that application be made to the NYSDEC to have the site classification changed to a lower level.

ON-SITE ACTIVITIES

A. Excavation Activities

Five (5) test pits were excavated in the western portion of the former Monarch Chemical Site on Prentice Road in the Town of Vestal. The pits were excavated in areas suspected of being the location of a waste disposal dry well. The following paragraphs describe the location, soil type and general observations at each test pit, the sampling of soil from the test pits, and monitoring of ambient air during the excavation activities. A detailed site plan is provided in Appendix B of this report.

1. Test Pit 1. The excavation site is 78 ft. west of the center of a concrete ramp immediately behind the building. Soil encountered during the excavation consisted of moist, fine to course gravel, with a fine brown sand matrix. The soil appeared to have been placed at the site at a previous time.

   An underground steel pipe of approximately 2 in. outside diameter was encountered 1.5 ft. below the surface. The pipe appeared to be traversing the rear lot in a east-west direction. Excavation was stopped at a depth of twelve (12) feet. A soil sample was obtained of material from the bottom of the pit for laboratory analysis.

   HNu photoionization detector readings from in, and around, the excavation and no significant indications of volatile organic contamination were found. There were several small discolored silty soil pockets encountered that registered readings of 5 ppm. Readings from the interior of the pipe were in the 10 to 15 ppm range. Head space HNu readings of soil from the bottom of the test pit registered 3 ppm.

   Monitoring of ambient air was conducted at several down-wind positions and no volatile contaminants were detected.

   It was concluded that test pit #1 was not located at the site of the former Monarch Chemical waste disposal dry well.

On-Site Activities (Con't.)

2. Test Pit 2. The excavation was 105 ft. west of the concrete ramp, directly west of test pit 1. Soil encountered during the excavation consisted of a moist, fine-to-course gravel mixture with a fine brown sand matrix. The soil appeared to have been disturbed in the past. The underground steel pipe seen in test pit #1 was not encountered at this pit location. Excavation was stopped at a depth of five (5) feet when it became apparent that the pipe was not present. No soil sample was collected from this test pit.

   No significant HNu meter readings were obtained from soil excavated from this pit. Monitoring of ambient air was conducted at several down-wind positions and no volatile contaminants were detected.

3. Test Pit 3. The excavation was 87 ft. west of the concrete ramp, midway between test pit 1 and test pit 2. Soil encountered during the first 8 ft. of the excavation consisted of moist fine-to-course gravel with a fine brown sand matrix and some fill material consisting of wood. From 8 to 10 ft., well sorted gravel and fine sand deposits were encountered.

   Soil down to the 8 ft. depth appeared to have been excavated and backfilled at a previous time and the soil from 8 ft. to the bottom of the excavation appeared to be undisturbed virgin soil. A grey mineral deposit was observed on much of the gravel near the bottom of the excavation. The end of the underground steel pipe, first encountered in test pit #1, was discovered 2 ft. below the surface. Excavation was halted at a depth of twelve (12) feet. No soil sample was taken from this test pit.

   HNu meter readings 1 to 2 ppm were obtained from soil excavated from this location. No HNu readings were registered from soil at the bottom of the excavation. A piece of wet wood excavated from a location near the end of the pipe produced an HNu reading of 15 ppm. Readings from the interior of the pipe were in the 10 to 15 ppm range. No indication of volatile contaminants were obtained from headspace samples of soil from the bottom of the excavation.

   Monitoring of ambient air was conducted at several down-wind positions from this test pit near the site property line and no indication of volatile contaminants were detected.

On-Site Activities (Con't.)

4. **Test Pit 4.** The pit was excavated 35 ft. west of the concrete ramp. Soil encountered during the excavation consisted of moist fine-to-course gravel with a fine brown sand matrix with some rust staining. Much of the gravel encountered at the bottom of the excavation was coated with the same grey mineral deposit observed in test pit 3. The soil appeared to have been disturbed in the past. Excavation was halted at a depth of 14 ft. A soil sample was taken for laboratory analysis.

   HNu meter readings from isolated soil pockets from this excavation were in the range of 10 ppm. HNu meter readings from headspace samples of soil from the bottom of the excavation were in the range of 3 ppm.

   Monitoring of ambient air was conducted at several down-wind positions from this test pit near the site property line. No indication of volatile contaminants were detected.

5. **Test Pit 5.** The excavation was located southeast of test pit 4, in the immediate vicinity of a circular concrete structure apparent on the surface of the ground. The excavation revealed that the concrete structure was actually a column. The concrete column continued to a depth of 4 ft. where a horizontal concrete structure was encountered. It is assumed that the concrete is part of a former building foundation.

   Soil encountered during the excavation consisted of moist fine-to-course gravel with a rusty sand matrix. The soil appeared to have been disturbed in the past.

   A cylindrical concrete structure was encountered 5 ft. north of the concrete pillar. The structure consisted of one or more concrete pipe sections, approximately 24 in. in diameter, that extended from the surface to a depth of approximately 6 ft. The interior of the pipe was filled with soil and appeared to be a dry well. In addition, one of the lost groundwater monitoring wells was discovered several inches below the surface near the filled concrete pipe.

   Excavation was halted at a depth of approximately 6 ft. Two soil samples were obtained from this excavation. Sample 5 consisted of apparently uncontaminated soil taken from the bottom of the test pit 5 at a depth of 6 ft. Sample 5A consisted of soil (that appeared to be contaminated) from around the base of the filled

On-Site Activities (Con't.)

Test Pit 5 (Con't.)

concrete pipe or dry well.

The cover of the monitoring well casing was removed and a probe was dropped down the well to confirm that groundwater was present. Subsequent measurements indicated that groundwater is present 46.55 ft. beneath the surface and the total depth of the well appears to be 76 ft. The well was purged and sampled on April 28, 1993.

HNu meter readings from in and around the test pit were generally in the range of 1 to 4 ppm. However, reading in the 50 to 200 ppm range were obtained from soil in the immediate vicinity of the concrete pipes. In addition, a pronounced odor was prevalent in and around the excavation.

Headspace samples of soil from the bottom of the excavation produced HNu readings of 40 ppm. It was concluded that test pit 5 is probably the location of the former Monarch Chemical waste disposal dry well.

Monitoring of ambient air was conducted at several down-wind positions from this test pit near the property line. No indication of volatile contaminants was detected.

6. **Monitoring Well Search.** During the excavation of test pit 5, one of two monitoring wells installed in the early 1980's was re-discovered. An attempt was made to locate the second monitoring well, using general directions provided in an earlier site study. The attempt was not successful.

RESULTS

A total of five backhoe test pits were excavated at the former Monarch Chemical site. Soil samples were obtained from test pits 1, 4 and 5. A groundwater sample was obtained from the re-discovered groundwater monitoring well. Based on the on observations made during excavations, it is believed that the former Monarch Chemical dry well location is at the site of test pit 5.

A summary of the analytical results from the laboratory analysis of the soil and groundwater samples is provided below.

Test Pit 1

Material analyzed - soil from bottom of excavation
Method - EPA 8010 for halogenated organic compounds
Analytical results:

Tetrachloroethene	151	ug/Kg
Trichloroethene	11.6	ug/Kg

Test Pit 4

Material analyzed - soil from bottom of excavation
Method - EPA 8010 for halogenated organic compounds
Analytical results:

Tetrachloroethene	81	ug/Kg
Trichloroethene	7.8	ug/Kg

Test Pit 5

Material analyzed - soil from bottom of excavation
Method - EPA 8010 for halogenated organic compounds
Analytical results:

Tetrachloroethene	1,510	ug/Kg
1,2-Dichlorobenezene	33	ug/Kg

Test Pit 5A

Material analyzed - soil from side of concrete structure
Method - EPA 8010 for halogenated organic compounds
Analytical results:

Tetrachloroethene	51,000 ppm	ug/Kg
Trichloroethene	320	ug/Kg

Results (Con't.)

Test Pit 5A

Material analyzed - soil from side of concrete pipes
Method of analysis - SW846-9060 for total organic compounds
Analytical results:

TOC	15,550 mg/kg

Re-discovered Groundwater Monitoring Well

Material analyzed - groundwater
Method - EPA 601 for halogenated organic compounds
Analytical results:

Tetrachloroethene	9.5 ug/l *
Trichloroethene	2.9 ug/l
1,1,1-Trichloroethane	2.0 ug/l

CONCLUSIONS AND RECOMMENDATIONS

Based on on-site observations and laboratory results of soil and groundwater samples obtained from the site, it is apparent that significant contamination is present in the soil around the former dry well. While the general concentration of contaminants found in groundwater beneath the site is relatively low, there is future potential for increased groundwater contamination resulting from the leaching of contaminants from the dry well by rainwater into the groundwater.

It is recommended that the surface termination of the re-discovered groundwater monitoring well be repaired to prevent the incursion of rainwater from the surface into the well. The repairs should include the installation of a new cap to seal the top of the well casing and the installation of a new curb box (flush with the surface) to protect the casing.

It is recommended that routine sampling and analysis of the groundwater be implemented to monitor the quality of the groundwater beneath the site in the future.

It is recommended that the contaminated soil in the immediate area of the dry well be excavated and properly disposed of. The excavation activity performed during this study did not delineate the areal extent or full depth of the highly contaminated soil and further exploratory work using soil vapor analysis or other methods should be performed before the excavation is started.

Further exploration around the existing dry well may indicate the advisability of installing a soil vapor extraction system, possible coupled with air sparging, to remove additional contaminants from the soil.

Given the overall concentration of chlorinated solvent contamination found around the dry well, we do not believe that making application to regulatory agencies to down-grade the classification of the site is advisable until the additional site work described above is completed.

BUCK ENGINEERING
CONSULTING ENVIRONMENTAL ENGINEERS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150
607-753-3403

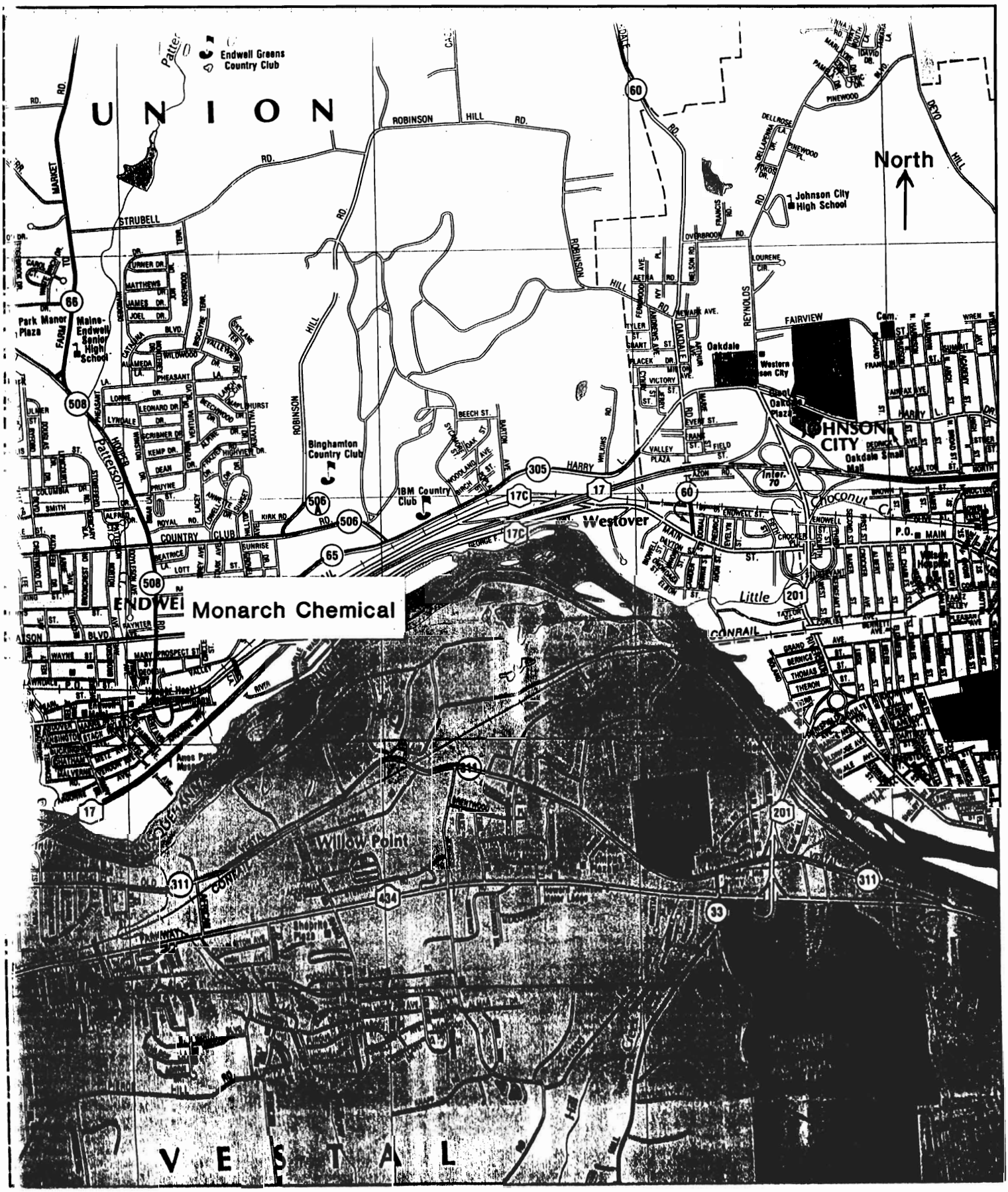
JOB Monarch Chemical Site Location Map

SHEET NO. _____ OF _____

CALCULATED BY EHM DATE 4-23-93

CHECKED BY _____ DATE _____

SCALE _____



APPENDIX A

LABORATORY REPORTS

Copies of a laboratory reports resulting from the analysis of soil and groundwater samples obtained from the former Monarch Chemical site are provided on the following pages.

BUCK ENVIRONMENTAL LABORATORIES INC.
ACCREDITED ENVIRONMENTAL ANALYSIS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150
607-753-3403

LABORATORY REPORT
Lab Log No: 9304277

Client: *Town of Vestal*
605 Vestal Parkway West
Vestal, NY 13850

Site: Former Monarch Chemical Site

Report Date: 05/19/93
Sampling Date: 04/27/93
Sampled By: E. Monsen
Date Received: 04/27/93
Analyzed by: SM , 05/07/93

Sample ID: Test Pit #1

VOLATILES BY METHOD EPA 8010

ANALYTE	CAS #	UNITS	DL	RESULT
Bromobenzene	108-86-1	ug/kg	2.0	ND
Bromodichloromethane	75-27-4	ug/kg	2.0	ND
Bromoform	75-25-2	ug/kg	2.0	ND
Bromomethane	74-83-9	ug/kg	2.0	ND
Carbon Tetrachloride	56-23-5	ug/kg	2.0	ND
Chlorobenzene	108-90-7	ug/kg	2.0	ND
Chloroethane	75-00-3	ug/kg	2.0	ND
2-Chloroethylvinyl ether	110-75-8	ug/kg	2.0	ND
Chloroform	67-66-3	ug/kg	2.0	ND
Chloromethane	74-87-3	ug/kg	2.0	ND
Dibromochloromethane	124-48-1	ug/kg	2.0	ND
Dibromomethane	74-95-3	ug/kg	2.0	ND
1,2-Dichlorobenzene	95-50-1	ug/kg	2.0	ND
1,3-Dichlorobenzene	541-73-1	ug/kg	2.0	ND
1,4-Dichlorobenzene	106-46-7	ug/kg	2.0	ND
Dichlorodifluoromethane	75-71-8	ug/kg	2.0	ND
1,1-Dichloroethane	75-34-3	ug/kg	2.0	ND
1,2-Dichloroethane	107-06-2	ug/kg	2.0	ND
1,1-Dichloroethene	75-35-4	ug/kg	2.0	ND
trans-1,2-Dichloroethene	156-60-5	ug/kg	2.0	ND
cis-1,2-Dichloroethene	156-59-2	ug/kg	2.0	ND
1,2-Dichloropropane	78-87-5	ug/kg	2.0	ND
cis-1,3-Dichloropropene	10061-01-5	ug/kg	2.0	ND
trans-1,3-Dichloropropene	10061-02-6	ug/kg	2.0	ND
Methylene Chloride	75-09-2	ug/kg	2.0	ND
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	2.0	ND
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	2.0	ND
Tetrachloroethene	127-18-4	ug/kg	2.0	*151*
1,1,1-Trichloroethane	71-55-6	ug/kg	2.0	ND
1,1,2-Trichloroethane	79-00-5	ug/kg	2.0	ND
Trichloroethene	79-01-6	ug/kg	2.0	*11.6*
Trichlorofluoromethane	75-69-4	ug/kg	2.0	ND
1,2,3-Trichloropropane	96-18-4	ug/kg	2.0	ND
Vinyl Chloride	75-01-4	ug/kg	2.0	ND

ND - None detected greater than detection limit (DL) noted.
These results are certified as conforming with generally accepted laboratory standards and requirements of the New York State Department of Health ELAP Program.

John H. Kinne

Laboratory Director
ELAP ID - 10795

BUCK ENVIRONMENTAL LABORATORIES INC.
ACCREDITED ENVIRONMENTAL ANALYSIS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150
607-753-3403

LABORATORY REPORT
Lab Log No: 9304277

Client: *Town of Vestal*
605 Vestal Parkway West
Vestal, NY 13850

Site: Former Monarch Chemical Site

Report Date: 05/19/93
Sampling Date: 04/27/93
Sampled By: E. Monsen
Date Received: 04/27/93
Analyzed by: SM , 05/07/93

Sample ID: Test Pit #4

VOLATILES BY METHOD EPA 8010

ANALYTE	CAS #	UNITS	DL	RESULT
Bromobenzene	108-86-1	ug/kg	2.0	ND
Bromodichloromethane	75-27-4	ug/kg	2.0	ND
Bromoform	75-25-2	ug/kg	2.0	ND
Bromomethane	74-83-9	ug/kg	2.0	ND
Carbon Tetrachloride	56-23-5	ug/kg	2.0	ND
Chlorobenzene	108-90-7	ug/kg	2.0	ND
Chloroethane	75-00-3	ug/kg	2.0	ND
2-Chloroethylvinyl ether	110-75-8	ug/kg	2.0	ND
Chloroform	67-66-3	ug/kg	2.0	ND
Chloromethane	74-87-3	ug/kg	2.0	ND
Dibromochloromethane	124-48-1	ug/kg	2.0	ND
Dibromomethane	74-95-3	ug/kg	2.0	ND
1,2-Dichlorobenzene	95-50-1	ug/kg	2.0	ND
1,3-Dichlorobenzene	541-73-1	ug/kg	2.0	ND
1,4-Dichlorobenzene	106-46-7	ug/kg	2.0	ND
Dichlorodifluoromethane	75-71-8	ug/kg	2.0	ND
1,1-Dichloroethane	75-34-3	ug/kg	2.0	ND
1,2-Dichloroethane	107-06-2	ug/kg	2.0	ND
1,1-Dichloroethene	75-35-4	ug/kg	2.0	ND
trans-1,2-Dichloroethene	156-60-5	ug/kg	2.0	ND
cis-1,2-Dichloroethene	156-59-2	ug/kg	2.0	ND
1,2-Dichloropropane	78-87-5	ug/kg	2.0	ND
cis-1,3-Dichloropropene	10061-01-5	ug/kg	2.0	ND
trans-1,3-Dichloropropene	10061-02-6	ug/kg	2.0	ND
Methylene Chloride	75-09-2	ug/kg	2.0	ND
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	2.0	ND
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	2.0	ND
Tetrachloroethene	127-18-4	ug/kg	2.0	*81*
1,1,1-Trichloroethane	71-55-6	ug/kg	2.0	ND
1,1,2-Trichloroethane	79-00-5	ug/kg	2.0	ND
Trichloroethene	79-01-6	ug/kg	2.0	*7.8*
Trichlorofluoromethane	75-69-4	ug/kg	2.0	ND
1,2,3-Trichloropropane	96-18-4	ug/kg	2.0	ND
Vinyl Chloride	75-01-4	ug/kg	2.0	ND

ND - None detected greater than detection limit (DL) noted.
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LABORATORY REPORT
Lab Log No: 9304277

Client: *Town of Vestal*
605 Vestal Parkway West
Vestal, NY 13850

Site: Former Monarch Chemical Site

Report Date: 05/19/93
Sampling Date: 04/27/93
Sampled By: E. Monsen
Date Received: 04/27/93
Analyzed by: SM , 05/07/93

Sample ID: Test Pit #5

VOLATILES BY METHOD EPA 8010

ANALYTE	CAS #	UNITS	DL	RESULT
Bromobenzene	108-86-1	ug/kg	10.	ND
Bromodichloromethane	75-27-4	ug/kg	10.	ND
Bromoform	75-25-2	ug/kg	10.	ND
Bromomethane	74-83-9	ug/kg	10.	ND
Carbon Tetrachloride	56-23-5	ug/kg	10.	ND
Chlorobenzene	108-90-7	ug/kg	10.	ND
Chloroethane	75-00-3	ug/kg	10.	ND
2-Chloroethylvinyl ether	110-75-8	ug/kg	10.	ND
Chloroform	67-66-3	ug/kg	10.	ND
Chloromethane	74-87-3	ug/kg	10.	ND
Dibromochloromethane	124-48-1	ug/kg	10.	ND
Dibromomethane	74-95-3	ug/kg	10.	ND
1,2-Dichlorobenzene	95-50-1	ug/kg	10.	*33.0*
1,3-Dichlorobenzene	541-73-1	ug/kg	10.	ND
1,4-Dichlorobenzene	106-46-7	ug/kg	10.	ND
Dichlorodifluoromethane	75-71-8	ug/kg	10.	ND
1,1-Dichloroethane	75-34-3	ug/kg	10.	ND
1,2-Dichloroethane	107-06-2	ug/kg	10.	ND
1,1-Dichloroethene	75-35-4	ug/kg	10.	ND
trans-1,2-Dichloroethene	156-60-5	ug/kg	10.	ND
cis-1,2-Dichloroethene	156-59-2	ug/kg	10.	ND
1,2-Dichloropropane	78-87-5	ug/kg	10.	ND
cis-1,3-Dichloropropene	10061-01-5	ug/kg	10.	ND
trans-1,3-Dichloropropene	10061-02-6	ug/kg	10.	ND
Methylene Chloride	75-09-2	ug/kg	10.	ND
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	10.	ND
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	10.	ND
Tetrachloroethene	127-18-4	ug/kg	10.	*1,510*
1,1,1-Trichloroethane	71-55-6	ug/kg	10.	ND
1,1,2-Trichloroethane	79-00-5	ug/kg	10.	ND
Trichloroethene	79-01-6	ug/kg	10.	ND
Trichlorofluoromethane	75-69-4	ug/kg	10.	ND
1,2,3-Trichloropropane	96-18-4	ug/kg	10.	ND
Vinyl Chloride	75-01-4	ug/kg	10.	ND

ND - None detected greater than detection limit (DL) noted.
These results are certified as conforming with generally accepted laboratory standards and requirements of the New York State Department of Health ELAP Program.

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LABORATORY REPORT
Lab Log No: 9304277

Client: *Town of Vestal*
605 Vestal Parkway West
Vestal, NY 13850

Site: Former Monarch Chemical Site

Report Date: 05/19/93
Sampling Date: 04/27/93
Sampled By: E. Monsen
Date Received: 04/27/93
Analyzed by: SM , 05/07/93

Sample ID: Test Pit #5A

VOLATILES BY METHOD EPA 8010

ANALYTE	CAS #	UNITS	DL	RESULT
Bromobenzene	108-86-1	ug/kg	250	ND
Bromodichloromethane	75-27-4	ug/kg	250	ND
Bromoform	75-25-2	ug/kg	250	ND
Bromomethane	74-83-9	ug/kg	250	ND
Carbon Tetrachloride	56-23-5	ug/kg	250	ND
Chlorobenzene	108-90-7	ug/kg	250	ND
Chloroethane	75-00-3	ug/kg	250	ND
2-Chloroethylvinyl ether	110-75-8	ug/kg	250	ND
Chloroform	67-66-3	ug/kg	250	ND
Chloromethane	74-87-3	ug/kg	250	ND
Dibromochloromethane	124-48-1	ug/kg	250	ND
Dibromomethane	74-95-3	ug/kg	250	ND
1,2-Dichlorobenzene	95-50-1	ug/kg	250	ND
1,3-Dichlorobenzene	541-73-1	ug/kg	250	ND
1,4-Dichlorobenzene	106-46-7	ug/kg	250	ND
Dichlorodifluoromethane	75-71-8	ug/kg	250	ND
1,1-Dichloroethane	75-34-3	ug/kg	250	ND
1,2-Dichloroethane	107-06-2	ug/kg	250	ND
1,1-Dichloroethene	75-35-4	ug/kg	250	ND
trans-1,2-Dichloroethene	156-60-5	ug/kg	250	ND
cis-1,2-Dichloroethene	156-59-2	ug/kg	250	ND
1,2-Dichloropropane	78-87-5	ug/kg	250	ND
cis-1,3-Dichloropropene	10061-01-5	ug/kg	250	ND
trans-1,3-Dichloropropene	10061-02-6	ug/kg	250	ND
Methylene Chloride	75-09-2	ug/kg	250	ND
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	250	ND
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	250	ND
Tetrachloroethene	127-18-4	ug/kg	250	*51,000*
1,1,1-Trichloroethane	71-55-6	ug/kg	250	ND
1,1,2-Trichloroethane	79-00-5	ug/kg	250	ND
Trichloroethene	79-01-6	ug/kg	250	*320*
Trichlorofluoromethane	75-69-4	ug/kg	250	ND
1,2,3-Trichloropropane	96-18-4	ug/kg	250	ND
Vinyl Chloride	75-01-4	ug/kg	250	ND

ND - None detected greater than detection limit (DL) noted.
These results are certified as conforming with generally accepted laboratory standards and requirements of the New York State Department of Health ELAP Program.

John H. Buck

Laboratory Director
ELAP ID - 10795

BUCK ENVIRONMENTAL LABORATORIES INC.
ACCREDITED ENVIRONMENTAL ANALYSIS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150
607-753-3403

Report Date: 5/19/93

Lab Log Number: 9304277

LABORATORY REPORT

Client: **TOWN OF VESTAL**

Site: Former Monarch Chemical Site

Sample Date: 4/27/93 by E. Monsen

Sample Description: SoIL - Test Pit #5A

Method: SW846-9060

RESULTS

TOC	15,550 mg/kg

As reported by Laboratory ELAP #11140.

This analysis is certified as conforming to generally accepted laboratory practices and requirements of the New York State Health Department ELAP program.

John H. Buck, P.E.
Laboratory Director

NYS ELAP CERT 10795

BUCK ENVIRONMENTAL LABORATORIES INC.
ACCREDITED ENVIRONMENTAL ANALYSIS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150 607-753-3403

LABORATORY REPORT
Lab Log No: 9304290

Client: *Town of Vestal*
605 Vestal Parkway West
Vestal, NY 13850

Site: Mapes Moving
Prentice Road

Report Date: 05/11/93
Sampling Date: 04/28/93
Sampled By: D. Shearer
Date Received: 04/28/93
Analyzed by: SM , 05/03/93

Sample ID: water - abandoned well **VOLATILES BY METHOD EPA_601**

ANALYTE	CAS #	UNITS	DL	RESULT
Bromodichloromethane	75-27-4	ug/l	2.0	ND
Bromoform	75-25-2	ug/l	2.0	ND
Bromomethane	74-83-9	ug/l	2.0	ND
Carbon Tetrachloride	56-23-5	ug/l	2.0	ND
Chlorobenzene	108-90-7	ug/l	2.0	ND
Chloroethane	75-00-3	ug/l	2.0	ND
2-Chloroethylvinyl ether	110-75-8	ug/l	2.0	ND
Chloroform	67-66-3	ug/l	2.0	ND
Chloromethane	74-87-3	ug/l	2.0	ND
Dibromochloromethane	124-48-1	ug/l	2.0	ND
1,2-Dichlorobenzene	95-50-1	ug/l	2.0	ND
1,3-Dichlorobenzene	541-73-1	ug/l	2.0	ND
1,4-Dichlorobenzene	106-46-7	ug/l	2.0	ND
Dichlorodifluoromethane	75-71-8	ug/l	2.0	ND
1,1-Dichloroethane	75-34-3	ug/l	2.0	ND
1,2-Dichloroethane	107-06-2	ug/l	2.0	ND
1,1-Dichloroethene	75-35-4	ug/l	2.0	ND
trans-1,2-Dichloroethene	156-60-5	ug/l	2.0	ND
cis-1,2-Dichloroethene	156-59-2	ug/l	2.0	ND
1,2-Dichloropropane	78-87-5	ug/l	2.0	ND
cis-1,3-Dichloropropene	10061-01-5	ug/l	2.0	ND
trans-1,3-Dichloropropene	10061-02-6	ug/l	2.0	ND
Methylene Chloride	75-09-2	ug/l	2.0	ND
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	2.0	ND
Tetrachloroethene	127-18-4	ug/l	2.0	*9.5*
1,1,1-Trichloroethane	71-55-6	ug/l	2.0	*2.0*
1,1,2-Trichloroethane	79-00-5	ug/l	2.0	ND
Trichloroethene	79-01-6	ug/l	2.0	*2.9*
Trichlorofluoromethane	75-69-4	ug/l	2.0	ND
Vinyl Chloride	75-01-4	ug/l	2.0	ND

ND - None detected greater than detection limit (DL) noted.
These results are certified as conforming with generally accepted laboratory standards and requirements of the New York State Department of Health ELAP Program.

John H. Buck

Laboratory Director
ELAP ID - 10795

BUCK ENVIRONMENTAL LABORATORIES INC.
ACCREDITED ENVIRONMENTAL ANALYSIS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150 607-753-3403

LABORATORY REPORT
Lab Log No: 9304277

Client: ***Town of Vestal***
605 Vestal Parkway West
Vestal, NY 13850

Site: Former Monarch Chemical Site

Report Date: 05/25/93
Sampling Date: 04/27/93
Sampled By: E. Monsen
Date Received: 04/27/93
Analyzed by: SM , 05/07/93

Sample ID: water - Trip Blank

VOLATILES BY METHOD EPA_601

ANALYTE	CAS #	UNITS	DL	RESULT
Bromodichloromethane	75-27-4	ug/l	1.0	ND
Bromoform	75-25-2	ug/l	1.0	ND
Bromomethane	74-83-9	ug/l	1.0	ND
Carbon Tetrachloride	56-23-5	ug/l	1.0	ND
Chlorobenzene	108-90-7	ug/l	1.0	ND
Chloroethane	75-00-3	ug/l	1.0	ND
2-Chloroethylvinyl ether	110-75-8	ug/l	1.0	ND
Chloroform	67-66-3	ug/l	1.0	ND
Chloromethane	74-87-3	ug/l	1.0	ND
Dibromochloromethane	124-48-1	ug/l	1.0	ND
1,2-Dichlorobenzene	95-50-1	ug/l	1.0	ND
1,3-Dichlorobenzene	541-73-1	ug/l	1.0	ND
1,4-Dichlorobenzene	106-46-7	ug/l	1.0	ND
Dichlorodifluoromethane	75-71-8	ug/l	1.0	ND
1,1-Dichloroethane	75-34-3	ug/l	1.0	ND
1,2-Dichloroethane	107-06-2	ug/l	1.0	ND
1,1-Dichloroethene	75-35-4	ug/l	1.0	ND
trans-1,2-Dichloroethene	156-60-5	ug/l	1.0	ND
cis-1,2-Dichloroethene	156-59-2	ug/l	1.0	ND
1,2-Dichloropropane	78-87-5	ug/l	1.0	ND
cis-1,3-Dichloropropene	10061-01-5	ug/l	1.0	ND
trans-1,3-Dichloropropene	10061-02-6	ug/l	1.0	ND
Methylene Chloride	75-09-2	ug/l	1.0	ND
1,1,2,2-Tetrachloroethane	79-34-5	ug/l	1.0	ND
Tetrachloroethene	127-18-4	ug/l	1.0	ND
1,1,1-Trichloroethane	71-55-6	ug/l	1.0	ND
1,1,2-Trichloroethane	79-00-5	ug/l	1.0	ND
Trichloroethene	79-01-6	ug/l	1.0	ND
Trichlorofluoromethane	75-69-4	ug/l	1.0	ND
Vinyl Chloride	75-01-4	ug/l	1.0	ND

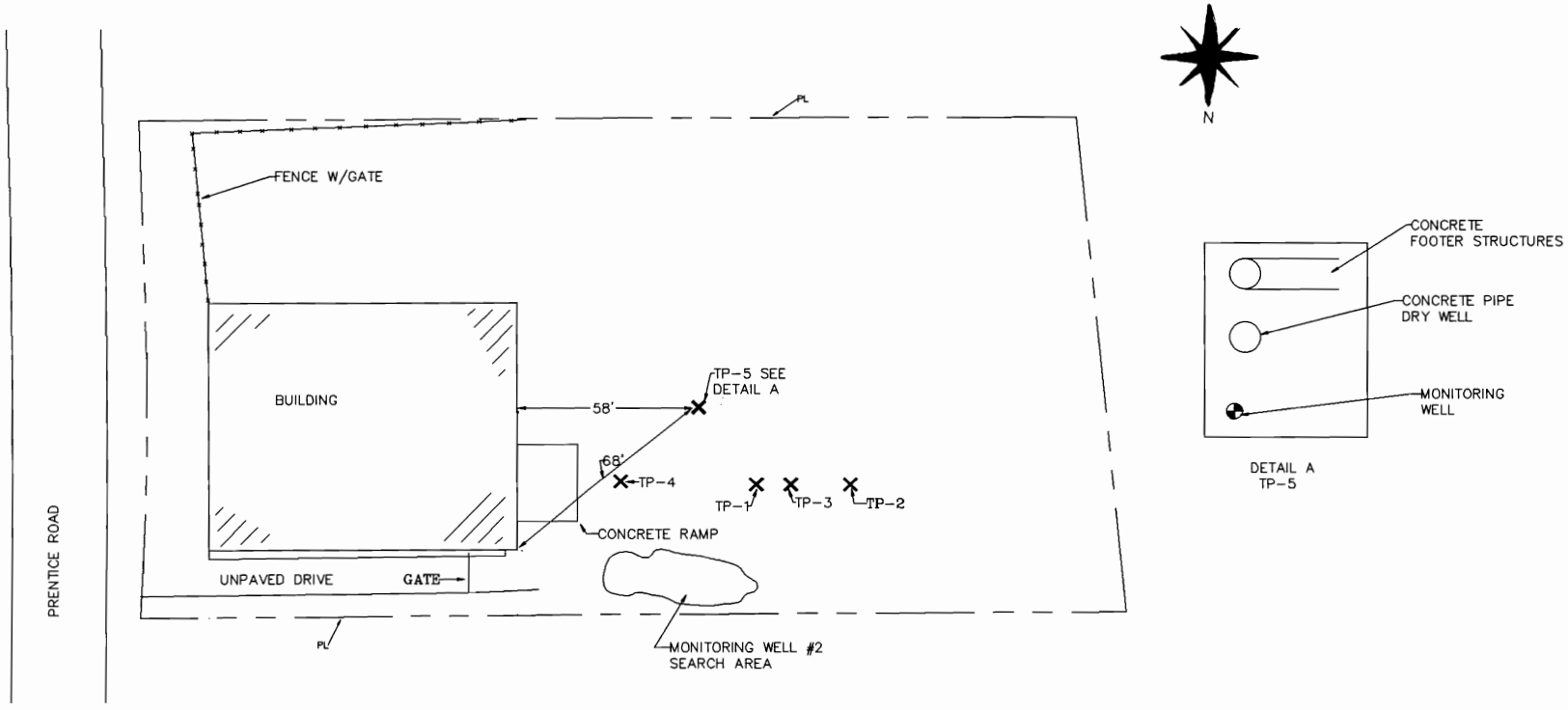
ND - None detected greater than detection limit (DL) noted.
These results are certified as conforming with generally accepted laboratory standards and requirements of the New York State Department of Health ELAP Program.

Laboratory Director
ELAP ID - 10795

APPENDIX B

SITE PLAN

A site plan showing test pit locations, the re-discovered groundwater monitoring well location and other prominent features is provided on the following page.



SITE SKETCH	REVISIONS
FORMER MONARCH CHEMICAL SITE PRENTICE ROAD VESTAL, NEW YORK	
	BY DRD
BUCK ENGINEERING 3845 ROUTE 11 SOUTH, P.O. BOX 5150 CORTLAND,N.Y. 13045 607-753-3403	DATE 2/25/93
	NO. 1 OF 1
	SCALE 1"=60'

APPENDIX C

CREDENTIALS

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

THE UNIVERSITY OF THE STATE OF NEW YORK

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.

Theodore M. Ambach
PRESIDENT OF THE UNIVERSITY
AND COMMISSIONER OF EDUCATION

Stanley M. Greenwald
EXECUTIVE SECRETARY

LICENSE NUMBER
55460

STATE OF NEW YORK
DEPARTMENT OF HEALTH

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

Mark R. Chassin, M.D., M.P.P., M.P.H.
Commissioner

Paula Wilson
Executive Deputy Commissioner

OFFICE OF PUBLIC HEALTH
Sue Kelly
Executive Deputy Director

WADSWORTH CENTER FOR LABORATORIES AND RESEARCH
Lawrence S. Sturman, M.D., Ph.D.
Director

Dear Laboratory Director:

Please note that although your ELAP Certificate of Approval expires on 12:01 AM April 1, 1993, it is still valid until June 30, 1993 pending receipt of your 1993-94 Certificate(s), as per ELAP Certification Manual, No. 140, Page 7 of 25, dated 4/1/86, Part 55-2.4e NYCRR. "All environmental laboratory approval will, during the pendency of inspections or extension or grace period permitted by this subpart, remain in force beyond the normal expiration dates of certificates unless such approval is specifically revoked or suspended in writing."

Notification regarding the issuance of 1993-94 ELAP Certificates of Approval is pending receipt of all non-governmental laboratories' Total Adjusted Volumes and Approval of the 1993-94 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) 474-8519.

Sincerely,

Linda L. Madlin
Administrative Assistant
Environmental Laboratory
Approval Program

LLM:saw

NEW YORK STATE DEPARTMENT OF HEALTH

DAVID AXELROD, M. D. *COMMISSIONER*

Expires 12:01 AM April 1, 1993
ISSUED April 1, 1992
REVISED October 13, 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 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:

Characteristic Testing :
- *Corrosivity*
- *Ignitability*
- *Reactivity*
- *TCLP*
- *Toxicity - Metals Only*

Miscellaneous :
- *Asbestos in Friable Material*
- *Cyanide, Total*

Metals I (ALL)
Purgeable Aromatics (ALL)

Polychlorinated Biphenyls (ALL)
Purgeable Halocarbons (ALL)

Serial No.: 13632

Herbert W. Dickerman, M.D., Ph.D., Director
Wadsworth Center for Laboratories and Research

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 (11/90)

NEW YORK STATE DEPARTMENT OF HEALTH

MARK R. CHASSIN, M.D., M.P.P., M.P.H. *COMMISSIONER*

Expires 12:01 AM April 1, 1993
ISSUED April 1, 1992
REVISED January 29, 1993

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 3845 ROUTE 11 SO
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:

Drinking Water Non-Metals :
- Alkalinity
- Calcium Hardness
- Chloride
- Cyanide
- Color
- Fluoride, Total
- Nitrite (as N)
- Nitrate (as N)
- Hydrogen Ion (pH)
- Solids, Total Dissolved
- Sulfate (as SO4)

D.W. Organochloride Pesticides :
- Aldrin
- Chlordane Total
- Endrin
- Heptachlor
- Heptachlor epoxide
- Lindane
- Methoxychlor
- Toxaphene

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

Polychlorinated Biphenyls (ALL)
Volatile Halocarbons (ALL)

Drinking Water Bacteriology (ALL)
D.W. Chlorinated Acids (ALL)
Drinking Water Trihalomethane (ALL)
Drinking Water Metals I (ALL)
Drinking Water Metals II (ALL)
Microextractables (ALL)
Volatile Aromatics (ALL)

Serial No.: 020068

Wadsworth Center for Laboratories and Research

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.

NEW YORK STATE DEPARTMENT OF HEALTH

DAVID AXELROD, M. D. *COMMISSIONER*

Expires 12:01 AM April 1, 199
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 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:

Chlor. Hydrocarbon Pesticides :
- 4,4 -DDD
- 4,4 -DDE
- 4,4 -DDT
- alpha-BHC
- Aldrin
- beta-BHC
- Chlordane Total
- delta-BHC
- Dieldrin
- Endrin aldehyde
- Endrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Heptachlor
- Heptachlor epoxide
- Lindane
- Methoxychlor
- Toxaphene

Wastewater Metals II :
- Aluminum, Total
- Arsenic, Total
- Beryllium, Total
- Mercury, Total
- Antimony, Total
- Selenium, Total
- Zinc, Total

Wastewater Bacteriology :
- Coliform, fecal
- Coliform, Total

Wastewater Metals III :
- Thallium, Total

Haloethers (ALL)
Nitrosoamines (ALL)
Phthalate Esters (ALL)
Purgeable Halocarbons (ALL)

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

Chlorophenoxy Acid Pesticides :
- 2,4-D
- 2,4,5-TP (Silvex)

Benzidines (ALL)
Chlorinated Hydrocarbons (ALL)
Wastewater Metals I (ALL)
Polynuclear Aromatics (ALL)
Priority Pollutant Phenols (ALL)
Residue (ALL)

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

Nutrient :
- Kjeldahl Nitrogen, Total
- Ammonia (as N)
- Nitrate (as N)
- Phosphorus, Total

Demand (ALL)
Nitroaromatics and Isophorone (ALL)
Polychlorinated Biphenyls (ALL)
Purgeable Aromatics (ALL)
TCLP Additional Compounds (ALL)

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

Serial No.: 12041

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-3312 (11/90)

APPENDIX D

WORK PLAN

A copy of the work plan prepared for the current study is provided on the following pages.

BUCK ENVIRONMENTAL SERVICES

SOIL EXCAVATION AND SAMPLING AT THE FORMER MONARCH CHEMICAL SITE PRENTICE ROAD VESTAL, NEW YORK

MARCH 1993

PREPARED FOR:

MR. DONALD BULMAN
DIRECTOR OF ENGINEERING SERVICES
TOWN OF VESTAL
605 VESTAL PARKWAY WEST
VESTAL, NEW YORK 13850

AND

THE NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

PREPARED BY:

BUCK ENGINEERING
PO BOX 5150
3145 ROUTE 11 SOUTH
CORTLAND, NEW YORK 13045
607-753-3403

WORK PLAN FOR SOIL EXCAVATION
FORMER MONARCH CHEMICAL SITE - MAR 1993

TABLE OF CONTENTS

INTRODUCTION

Buck Engineering and a local contractor have been retained by the Town of Vestal to excavate four to six test pits located at the former Monarch Chemical site on Prentice Road in the Town of Vestal to obtain soil samples for laboratory analysis. The purpose of this work plan is to define the activities that are to take place related to the soil excavation and sampling activities.

SITE ADDRESS

Prentice Road, Vestal, New York.

The site is located on the west side of Prentice Road, approximately 1/2 mile north of the junction of Prentice Road and Old Vestal Road.

PROJECT SCHEDULE

The on-site work is scheduled to take place as soon as the frost is out of the ground at the site, probably in early April 1993.

PRE-EXCAVATION PREPARATION

Buck Engineering:

1. Prepare a site specific Health and Safety Plan for use by Buck Engineering (BE) and Buck Environmental Laboratories (BEL) personnel.

2. Coordinate the excavation schedule with the Town of Vestal Engineering Department, the NYSDEC, and the excavation contractor.

3. Provide all BE and BEL employees expected to work at the site with approved respirators equipped with granular activated carbon canisters.

Excavation Contractor:

1. Provide all contractor employees expected to work at the site with approved respirators equipped with granular activated carbon canisters.

Pre-Excavation Preparation (Con't.)

2. Obtain ultraviolet (UV) resistant plastic sheeting of minimum 6 mil thickness for use in staging excavated soil at the work site.

EXCAVATION ACTIVITY

1. Using a tracked excavator at locations designated jointly by the Engineer and a NYSDEC representative, excavate the soil at four (4) to six (6) locations at the former Monarch Chemical site to a depth of 12 to 14 ft. Note: The final depth of the excavations will depend upon conditions found at the site.

2. Continuously monitor the excavation activity using an HNu photoionization detector. Background readings will be obtained prior to the start of excavation.

3. Remove any soil that is encountered that has HNu meter readings greater than 5 ppm. Stage contaminated soil on UV resistant plastic sheeting. At the conclusion of excavation activities, cover the contaminated soil pile with UV resistant plastic sheeting and ballast the covering sheet to ensure it remains in place.

4. Obtain composite soil samples from the bottom of each excavation for laboratory analysis by EPA Method 8010 and Total Organic Carbon.

5. Backfill the excavations with spoil removed from the excavations. In the event it is required, provide clean backfill material to completely close the excavations. Backfill material will be compacted with the excavator bucket to minimize surface settling.

SITE MONITORING

Representatives of Buck Engineering will provide an HNu meter and an explosimeter for use in monitoring the ambient conditions at the site. In addition, the HNu meter will be used on a regular schedule (i.e., every 15 to 20 minutes) to monitor the ambient air at the down-wind property line. In the event that HNu meter readings above background levels are obtained at the down-wind property line, excavation activities will be stopped until engineering controls or other methods can be implemented to eliminate the escape of fugitive emissions from the property. In the event that excavation activities are stopped, the excavation and

Site Monitoring (Con't.)

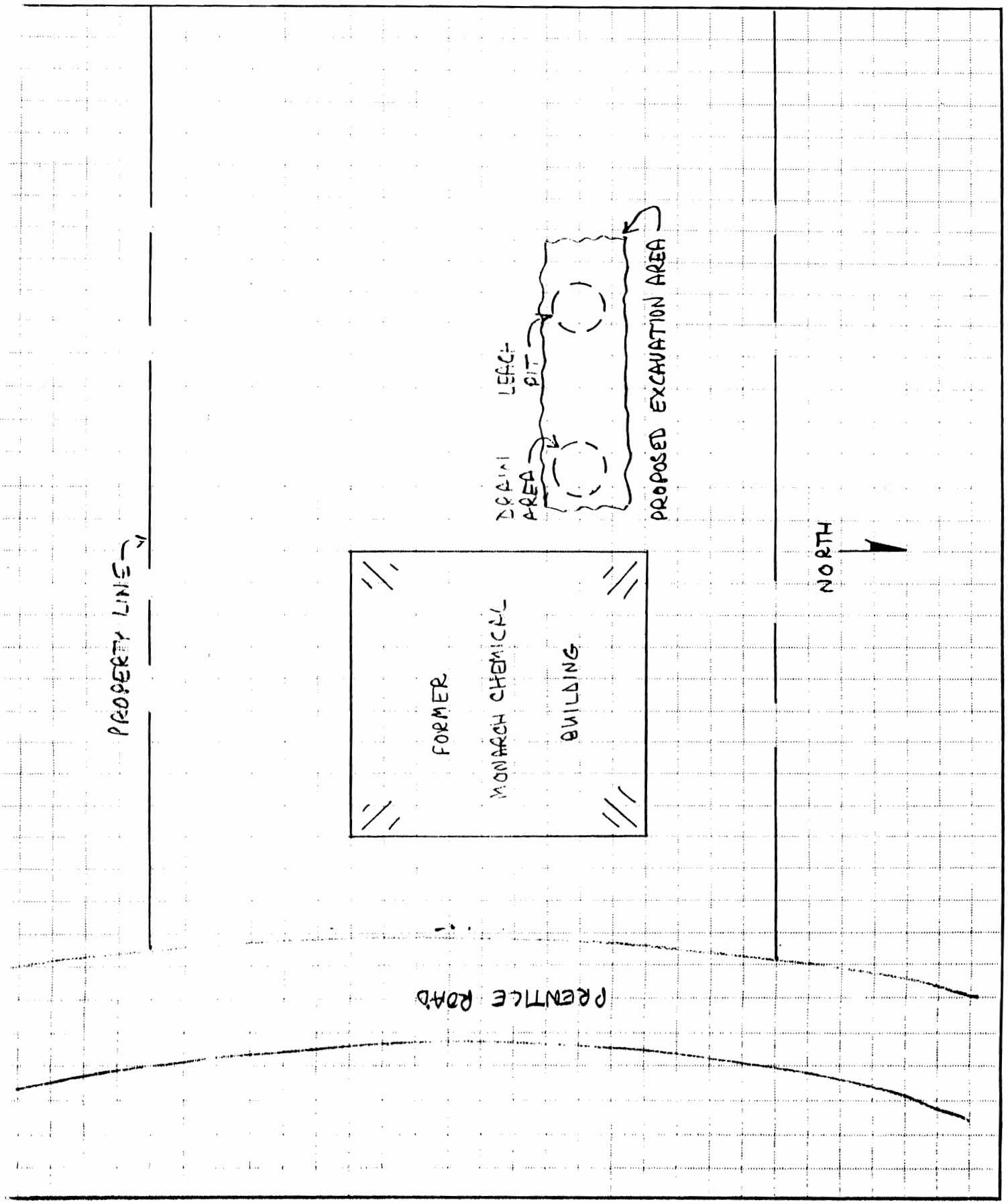
contaminated soil pile (in any) are to be immediately covered with plastic sheeting.

HEALTH AND SAFETY

A site specific Health and Safety Plan will be developed by Buck Engineering prior to the start of excavation activity.

BUCK ENGINEERING
CONSULTING ENVIRONMENTAL ENGINEERS
3845 ROUTE 11 SOUTH, CORTLAND, N.Y. 13045
P.O. BOX 5150 607-753-3403

JOB TOWN OF VESTAL - MONARCH CHEMICAL SITE
SHEET NO. _____ OF _____
CALCULATED BY _____ DATE _____
CHECKED BY PWS DATE 3/2/93
SCALE NOT TO SCALE



APPENDIX E

HEALTH AND SAFETY PLAN

A copy of the site specific Health and Safety Plan developed for Buck Engineering and Buck Environmental Laboratories employees in connection with their work at the former Monarch Chemical site is provided on the following pages.

BUCK ENVIRONMENTAL SERVICES

HEALTH AND SAFETY PLAN
FOR
SOIL SAMPLING
AT
MONARCH CHEMICAL SITE
PRENTICE ROAD
VESTAL, NEW YORK

DATE PREPARED:

APRIL 19, 1993

VERSION 1

PREPARED FOR:

MR. DONALD BULMAN
DIRECTOR OF ENGINEERING SERVICES
TOWN OF VESTAL
VESTAL, NEW YORK

PREPARED BY:

BUCK ENGINEERING
P.O. BOX 5150
3845 ROUTE 11 SOUTH
CORTLAND, NEW YORK 13045
607-753-3403

DISCLAIMER

Buck Engineering (BE) and Buck Environmental Laboratories, Inc. (BEL) do not guarantee the health and safety of any person entering this site. Due to the history of hazardous waste disposal at the site and the limited prior experience at the site, it is not possible to discover, evaluate and provide protection for all possible hazards which may be encountered. 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.

HEALTH AND SAFETY PLAN FOR
SOIL SAMPLING AT MONARCH CHEMICAL

TABLE OF CONTENTS

HEALTH AND SAFETY PLAN FOR
SOIL SAMPLING AT MONARCH CHEMICAL

INTRODUCTION: Buck Engineering has been retained by the Town of Vestal to perform soil sampling at the former Monarch Chemical site. The general scope of work includes a the excavation of several test pits from which soil samples will be taken for laboratory analysis.

SITE ADDRESS: Monarch Chemical
Prentice Road
Vestal, NY
(See attached location map)

PROJECT SCHEDULE: The on-site work will take place during late April 1993.

PROJECT STAFF: John H. Buck, P.E. - Project Director
Phillip W. Shaffner - On-site Manager
Eric Monsen - Staff Geologist and
Chairman of the Safety Committee

PERSONNEL COVERED BY PLAN: This Health and Safety Plan is intended only for employees of Buck Engineering (BE) and Buck Environmental Laboratories, Inc. (BEL).

MONARCH CHEMICAL CONTACT: Mr. Donald Bulman
Director of Engineering Services
Town of Vestal
605 Vestal Parkway
Vestal, NY 13850
Telephone: 607-748-1514

SITE DESCRIPTION: The former Monarch Chemical site is located on the west side of Prentice Road in the Town of Vestal, approximately 3/4 mile north of the junction of Prentice Road and Old Vestal Road. The site is rectangular with a building located on the easterly portion and a parking or storage area located behind the building to the west. There is a driveway from Prentice Road that borders the building on the north that leads to the rear parking area. The excavation and sampling work to be performed will occur in the storage and parking area at the rear of the building.

SITE ACTIVITIES: Excavation of 4 to 6 test pits to an estimated depth of 12 to 14 ft. and obtaining soil samples from the excavations for laboratory analysis. If found, contaminated soil may be excavated and placed on plastic sheeting for later disposal.

OVERALL SITE HAZARD POTENTIAL: Low

WORK AREA: The designated work area is the storage/parking area located behind the building.

EXCLUSION ZONE: None

CONTAMINATION REDUCTION ZONE: None

SUPPORT ZONE: None

DECONTAMINATION PROCEDURES: None

POTENTIAL HAZARDS:

Physical

- A tracked excavator will be used for excavation purposes.
- The depth of the test pits will create the danger of cave-ins (Note: No personnel are to enter the excavations.)

Chemical

- Low to moderate levels of chlorinated solvents have been found in soil samples obtained from bore holes at the site. The levels of these compounds expected to be encountered during site activities are well below the OSHA permissible exposure levels (PEL). An information sheet on TCE is attached.

Confined Space Entry

- None planned.

FIELD MONITORING EQUIPMENT: HNu meter

PROTECTIVE EQUIPMENT:
Hard hats
Safety glasses
Ear plugs
Negative pressure respirators with activated carbon filters
Tyvec protective overalls
Disposable gloves

PROTECTIVE CLOTHING: Level D (normal work clothes)

Note: Respirators and protective coveralls (Level C) are to be available on-site as a safety precaution in the event that significant concentrations of chlorinated solvents are encountered during the excavation process.

EMERGENCY ESCAPE ROUTES: Not applicable.

Note: In the event of an emergency, all project staff are to meet on Prentice Road, in front of the building.

EMERGENCY ASSISTANCE:

Ambulance:	911
Fire Department:	911
Medical Assistance:	911
Police - Sheriff:	911
- State Police	911

DIRECTIONS TO NEAREST HOSPITAL: Take Prentice Road south to Old Vestal Road. Turn left on Old Vestal Road and travel east to Route 201 north. Take Route 201 north, across the Susquehanna River and around the Johnson City traffic circle to Main Street in Johnson City. Exit from Route 201 onto Main Street and turn right (east). Wilson Hospital is located approximately 1/2 mile ahead and there are signs on Main Street directing you to the Emergency Entrance.

WHOM TO CONTACT IN CASE OF EMERGENCY:

Buck Engineering	Mr. John Buck	607-753-3403
Town of Vestal	Mr. Donald Bulman	607-748-1514

NAME OF PERSON THAT PREPARED THE PLAN: Phillip W. Shaffner

DESIGNATED SAFETY OFFICER: Eric Monsen

PLAN REVIEW AND APPROVAL:

Eric Monsen	4/23/93 Date
Phillip W. Shaffner	4/23/93 Date
John H. Buck	4/23/93 Date

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

John H. Buck	4/23/93 Date
Phillip W. Shaffner	4/23/93 Date
Eric Monsen	4/23/93 Date

Attachments: 1. Information sheet on TCE.

RECORD OF SAFETY MEETINGS

Date	Conducted By	Names of persons attending

BUCK ENGINEERING
ENVIRONMENTAL ENGINEERS
3845 ROUTE 11 SOUTH, P.O. BOX 5150
CORTLAND, N.Y. 13045 607-753-3403

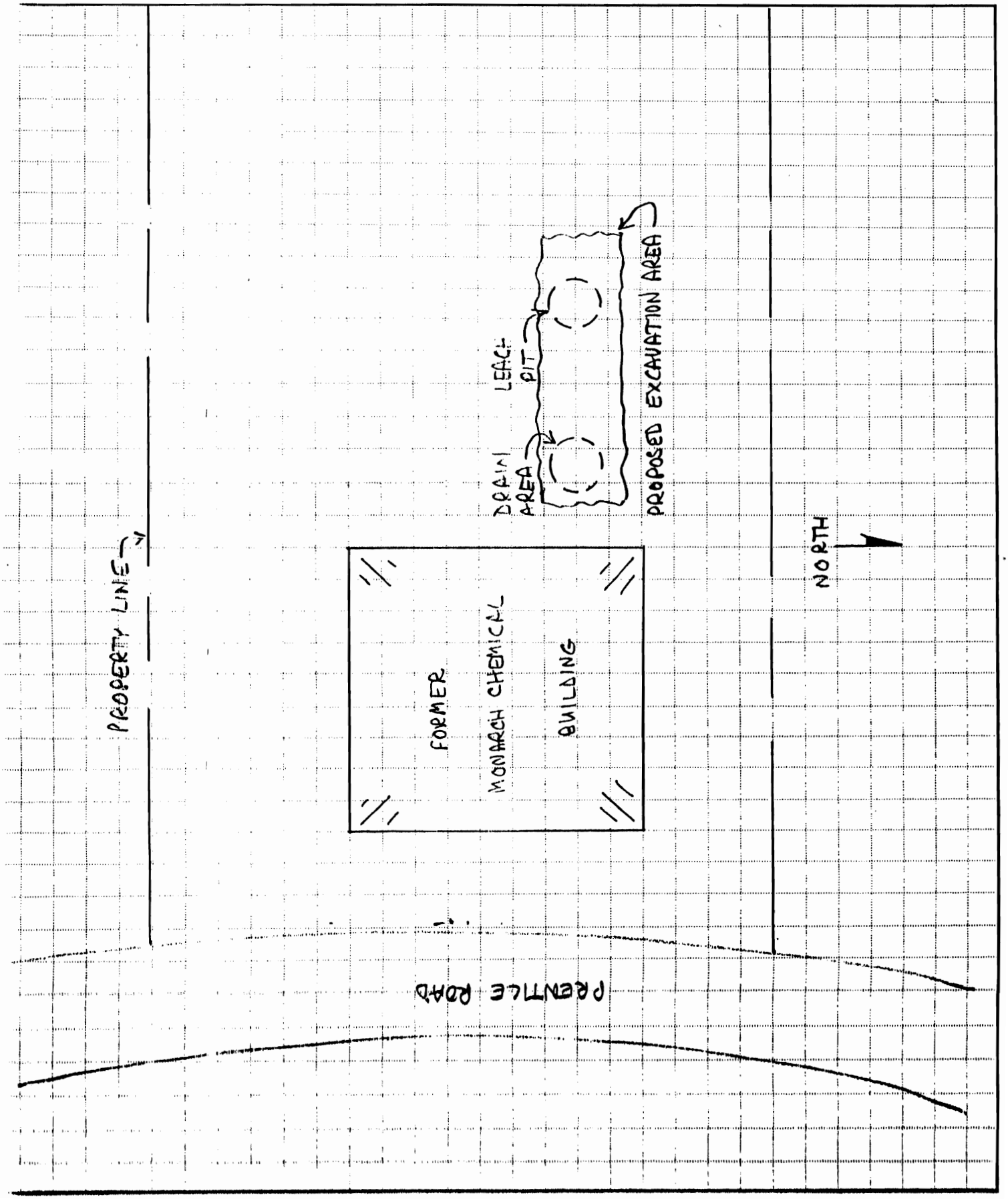
JOB TOWN OF VESTAL - MONARCH CHEMICAL SITE

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY PNS DATE 3/2/93

SCALE NOT TO SCALE



TRICHLOROETHANE

TCE

Common Synonyms	Watery liquid	Colorless	Sweet odor
1,1,1-Trichloroethane Methylchloroform Aerothene Chlorothene	Sinks in water. Irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Avoid contact with liquid and vapor.
Call fire department.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Combustible.
POISONOUS GASES ARE PRODUCED IN FIRE.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry chemical, carbon dioxide, or foam.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause dizziness or difficult breathing.

Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, may produce nausea.

Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Should be removed
Chemical and physical treatment

2. LABEL

2.1 Category: None
2.2 Class: Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 CG Compatibility Class: Halogenated hydrocarbon
3.2 Formula: CH_3CCl_3
3.3 IMO/UN Designation: Not listed
3.4 DOT ID No.: 2831
3.5 CAS Registry No.: 71-55-6

4. OBSERVABLE CHARACTERISTICS

4.1 Physical State (as shipped): Liquid
4.2 Color: Colorless
4.3 Odor: Chloroform-like; sweetish

5. HEALTH HAZARDS

5.1 Personal Protective Equipment: Organic vapor-acid gas canister; self-contained breathing apparatus for emergencies; neoprene or polyvinyl-alcohol-type gloves; chemical safety goggles and face shield; neoprene safety shoes (or leather safety shoes plus neoprene footwear); neoprene or polyvinyl alcohol suit or apron for splash protection.

5.2 Symptoms Following Exposure: INHALATION: symptoms range from loss of equilibrium and incoordination to loss of consciousness; high concentration can be fatal due to simple asphyxiation combined with loss of consciousness. INGESTION: produces effects similar to inhalation and may cause some feeling of nausea. EYES: slightly irritating and lachrymatory. SKIN: defatting action may cause dermatitis.

5.3 Treatment of Exposure: Get medical attention for all eye exposures and any other serious overexposures. Do NOT administer adrenalin or epinephrine; otherwise, treatment is symptomatic. INHALATION: remove victim to fresh air; if necessary, apply artificial respiration and/or administer oxygen. INGESTION: have victim drink water and induce vomiting. EYES: flush thoroughly with water. SKIN: remove contaminated clothing and wash exposed area thoroughly with soap and warm water.

5.4 Threshold Limit Value: 350 ppm
5.5 Short Term Inhalation Limits: 1,000 ppm for 60 min. in man
5.6 Toxicity by Ingestion: Grade 1; LD_{50} = 5 to 15 g/kg (rat, mouse, rabbit, guinea pig)
5.7 Late Toxicity: Data not available
5.8 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 Liquid or Solid Irritant Characteristics: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 Odor Threshold: 100 ppm
5.11 IDLH Value: 1,000 ppm

6. FIRE HAZARDS

6.1 Flash Point: Data not available
6.2 Flammable Limits in Air: 7%-16%
6.3 Fire Extinguishing Agents: Dry chemical, foam, or carbon dioxide
6.4 Fire Extinguishing Agents Not to be Used: Not pertinent
6.5 Special Hazards of Combustion Products: Toxic and irritating gases are generated in fires.
6.6 Behavior in Fire: Not pertinent
6.7 Ignition Temperature: 932°F
6.8 Electrical Hazard: Not pertinent
6.9 Burning Rate: (est.) 2.9 mm/min.
6.10 Adiabatic Flame Temperature: Data not available
6.11 Stoichiometric Air to Fuel Ratio: Data not available
6.12 Flame Temperature: Data not available

7. CHEMICAL REACTIVITY

7.1 Reactivity With Water: Reacts slowly, releasing corrosive hydrochloric acid.
7.2 Reactivity with Common Materials: Corrodes aluminum, but reaction is not hazardous.
7.3 Stability During Transport: Stable
7.4 Neutralizing Agents for Acids and Caustics: Not pertinent
7.5 Polymerization: Not pertinent
7.6 Inhibitor of Polymerization: Not pertinent
7.7 Molar Ratio (Reactant to Product): Data not available
7.8 Reactivity Group: 36

8. WATER POLLUTION

8.1 Aquatic Toxicity: 75-150 ppm/*/pinfish/TL_m/salt water
*Time period not specified.
8.2 Waterfowl Toxicity: Data not available
8.3 Biological Oxygen Demand (BOD): Data not available
8.4 Food Chain Concentration Potential: None

9. SHIPPING INFORMATION

9.1 Grades of Purity: Uninhibited; inhibited; industrial inhibited; white room; cold cleaning
9.2 Storage Temperature: Ambient
9.3 Inert Atmosphere: No requirement
9.4 Venting: Pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-X-Y

11. HAZARD CLASSIFICATIONS

11.1 Code of Federal Regulations: ORM-A

11.2 NAS Hazard Rating for Bulk Water Transportation:

Category	Rating
Fire	1
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	1
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 Physical State at 15°C and 1 atm: Liquid
12.2 Molecular Weight: 133.41
12.3 Boiling Point at 1 atm: 165°F = 74°C = 347°K
12.4 Freezing Point: <—36°F = <—39°C = <234°K
12.5 Critical Temperature: Not pertinent
12.6 Critical Pressure: Not pertinent
12.7 Specific Gravity: 1.31 at 20°C (liquid)
12.8 Liquid Surface Tension: 25.4 dynes/cm = 0.0254 N/m at 20°C
12.9 Liquid Water Interfacial Tension: (est.) 45 dynes/cm = 0.045 N/m at 20°C
12.10 Vapor (Gas) Specific Gravity: 4.6
12.11 Ratio of Specific Heats of Vapor (Gas): 1.104
12.12 Latent Heat of Vaporization: 100 Btu/lb = 56 cal/g = 2.4×10^5 J/kg
12.13 Heat of Combustion: (est.) 4700 Btu/lb = 2600 cal/g = 110×10^5 J/kg
12.14 Heat of Decomposition: Not pertinent
12.15 Heat of Solution: Not pertinent
12.16 Heat of Polymerization: Not pertinent
12.25 Heat of Fusion: Data not available
12.26 Limiting Value: Data not available
12.27 Reid Vapor Pressure: 4.0 psia

NOTES

TCE TRICHLOROETHANE

12.17 SATURATED LIQUID DENSITY	
Temperature (degrees F)	Pounds per cubic foot
0	85.419
10	84.870
20	84.309
30	83.759
40	83.200
50	82.650
60	82.089
70	81.540
80	80.981
90	80.429
100	79.870
110	79.320
120	78.759
130	78.209
140	77.650
150	77.099
160	76.540

12.18 LIQUID HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
55	.240
60	.242
65	.244
70	.246
75	.248
80	.250
85	.252
90	.254
95	.256
100	.258
105	.260
110	.262
115	.264
120	.266
125	.268
130	.270
135	.272
140	.274

12.19 LIQUID THERMAL CONDUCTIVITY	
Temperature (degrees F)	British thermal unit-inch per hour-square foot-F
	N
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	N
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12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Centipoise
15	1.363
20	1.295
25	1.231
30	1.172
35	1.117
40	1.065
45	1.017
50	.972
55	.929
60	.889
65	.852
70	.817
75	.784
80	.753
85	.723

12.21 SOLUBILITY IN WATER	
Temperature (degrees F)	Pounds per 100 pounds of water
68.02	.070

12.22 SATURATED VAPOR PRESSURE	
Temperature (degrees F)	Pounds per square inch
70	2.099
75	2.364
80	2.657
85	2.980
90	3.335
95	3.725
100	4.152
105	4.619
110	5.130
115	5.686
120	6.292
125	6.950
130	7.663
135	8.437
140	9.273
145	10.180
150	11.150
155	12.200
160	13.330
165	14.540
170	15.840
175	17.240
180	18.730
185	20.330
190	22.030

12.23 SATURATED VAPOR DENSITY	
Temperature (degrees F)	Pounds per cubic foot
70	.04925
75	.05495
80	.06119
85	.06799
90	.07540
95	.08346
100	.09220
105	.10170
110	.11190
115	.12300
120	.13490
125	.14770
130	.16150
135	.17630
140	.19220
145	.20920
150	.22730
155	.24670
160	.26730
165	.28930
170	.31270
175	.33760
180	.36390
185	.39180
190	.42140

12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
0	.146
25	.150
50	.155
75	.159
100	.163
125	.167
150	.171
175	.175
200	.179
225	.183
250	.186
275	.190
300	.193
325	.196
350	.199
375	.202
400	.205
425	.208
450	.210
475	.213
500	.215
525	.217
550	.219
575	.222
600	.223