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ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PRELIMINARY SITE ASSESSMENT

Chemical Leaman Tank Lines Site No. 915014

City of Tonawanda Erie County



Prepared for:

**New York State
Department of
Environmental Conservation**

50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., *Director*

By:

**Rust Environment & Infrastructure
of New York, Inc.**
in association with
TAMS CONSULTANTS, INC.

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REGIONAL OFFICE

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March 1994

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EXECUTIVE SUMMARY

SITE DESCRIPTION

The Chemical Leaman Tank Lines (CLTL) facility is located at 470 Fillmore Avenue (Section 39.14, Block 2, Lot 2) in the City of Tonawanda, Erie County, New York (Figure ES-1). The site, which occupies approximately four acres, has been in operation since 1963 (Figure ES-2). The CLTL Company engages in transport of bulk chemicals from supplier to customer. The company also performs chemical waste hauling services to approved treatment, storage and disposal (TSD) facilities for off-specification chemical products which cannot be used or recycled. After completing chemical transport services, the trucks return to the terminal where the tanks are drained of residuals and washed. Prior to 1978, rinse waters were discharged to a series of three surface settling impoundments for pH adjustment, solids settling and aeration (Figure ES-3). The effluent, less the settleable solids, was then discharged by gravity flow to the City of Tonawanda sanitary sewer system. In 1978, trace levels of priority pollutants were determined to be present in the effluent. CLTL discontinued using the impoundment system in 1978. Two of the surface impoundments were subsequently drained and excavated of sludge materials. These materials were disposed off-site at the Newco (CECOS) landfill in Niagara Falls, New York.

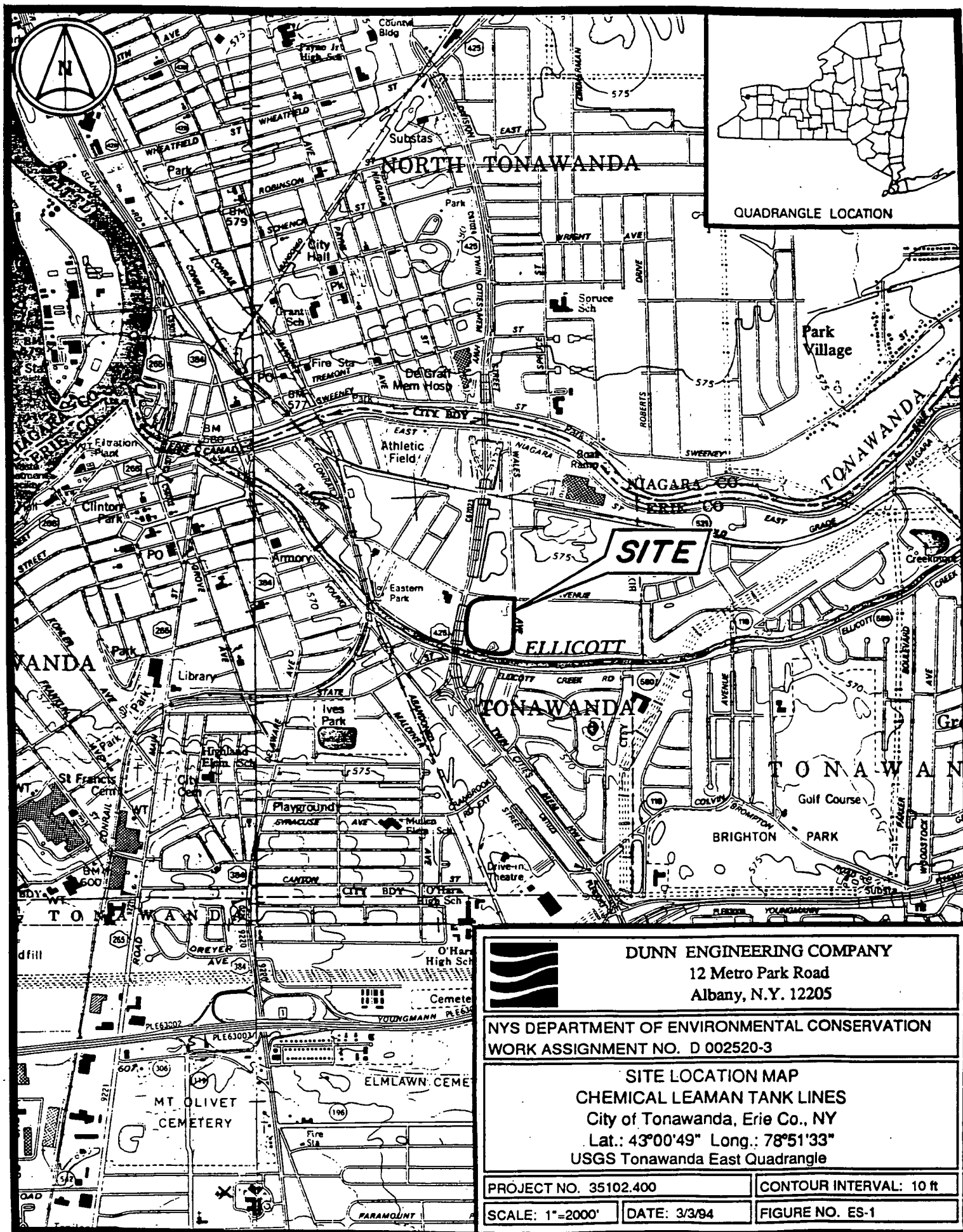
After discontinuing use of the surface impoundments in 1978, two underground storage tanks (1,000 gallons each) were installed to collect discharges which contained priority pollutants. Residual product was drained from the tankers, placed in drums and disposed off-site at Newco (CECOS). Currently, the contents of the storage tanks are periodically pumped and taken to a water treatment facility. All drummed materials are taken to the Chem Met ATSD facility located in Wyndotte, Michigan for disposal.

In 1989, the three lagoons were completely excavated, backfilled and closed out. The Region 9 office of the NYSDEC entered into negotiations with CLTL to implement a post-closure monitoring program. These negotiations were completed in 1991 and resulted in the installation of two additional monitoring wells, one upgradient and one downgradient.

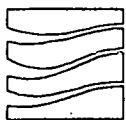
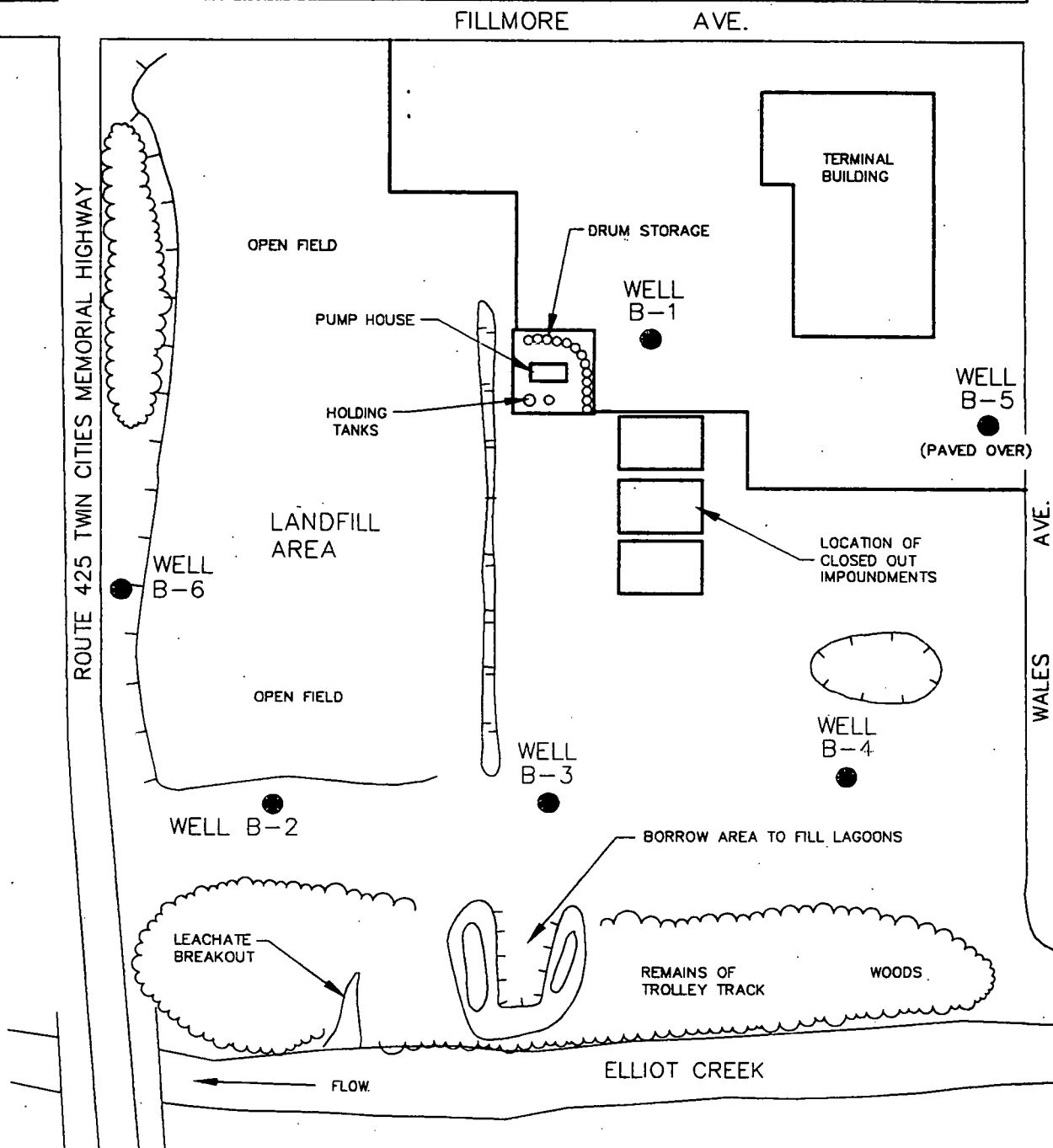
The site visit conducted in 1990 revealed the impoundments to be closed out as reported. Also noted was the large fill area in a field located on the western half of the property. This fill area appeared to contain construction and demolition debris as indicated by concrete chunks, reinforcement rod, wire and conduit protruding through the surface at various locations around the field (Figure ES-2).

SUMMARY OF PRELIMINARY SITE ASSESSMENT

A groundwater monitoring system consisting of four (4) wells (one upgradient and three downgradient) was installed in 1981. Samples collected from these wells in the early 1980's indicated the presence of phenols, iron, lead and manganese at concentrations that exceed New York State water quality standards for Class GA groundwater. In 1981, the United States Geological Survey (USGS) sampled the wells and found phenol in downgradient well B-3 at a concentration of 38 micrograms per liter ($\mu\text{g/l}$). Total organic carbon (TOC) was also found at detectable levels.



 DUNN ENGINEERING COMPANY 12 Metro Park Road Albany, N.Y. 12205		
NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION WORK ASSIGNMENT NO. D 002520-3		
SITE LOCATION MAP CHEMICAL LEAMAN TANK LINES City of Tonawanda, Erie Co., NY Lat.: 43°00'49" Long.: 78°51'33" USGS Tonawanda East Quadrangle		
PROJECT NO. 35102.400	CONTOUR INTERVAL: 10 ft	
SCALE: 1"=2000'	DATE: 3/3/94	FIGURE NO. ES-1



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SITE FEATURES MAP

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NUMBER: D002520-3

CHEMICAL LEAMAN TANK LINES

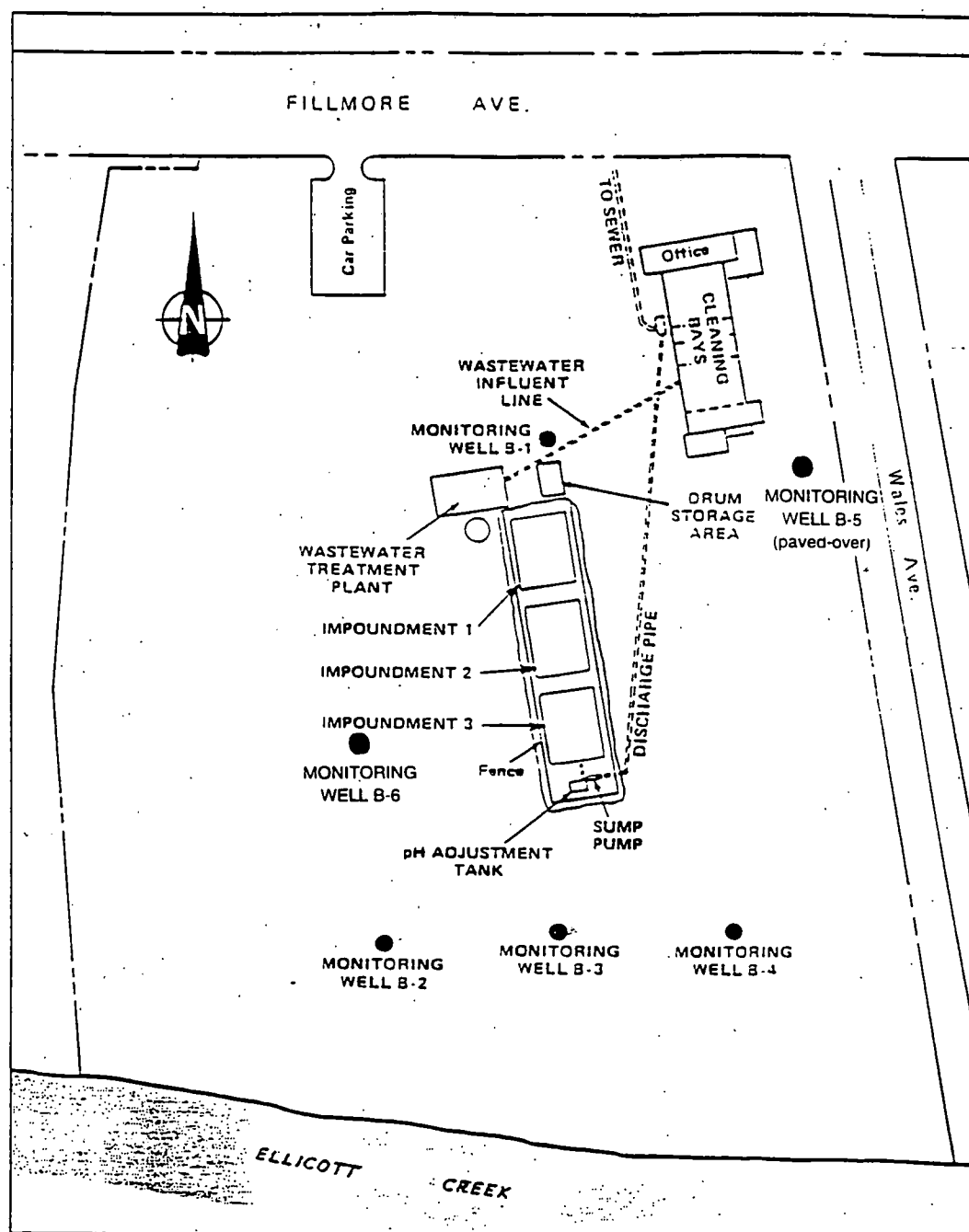
PROJECT NO. 35102.400

DATE 3/4/94

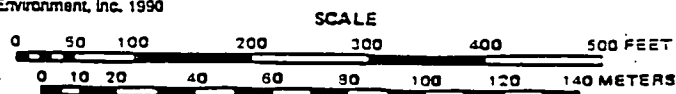
DWG. NO. 35102-01

SCALE NTS

FIGURE NO. ES-2



SOURCE: Ecology and Environment, Inc. 1990



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FORMER IMPOUNDMENT SYSTEM

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NUMBER: D002520-3

CHEMICAL LEAMAN TANK LINES

CITY OF TONAWANDA

ERIE COUNTY, NY

PROJECT NO. 35102.400

DATE 3/4/94

DWG. NO.

SCALE AS SHOWN

FIGURE NO. ES-3

In 1985, a New York State Department of Environmental Conservation (NYSDEC) Phase I Investigation was conducted at the site by Engineering-Science, Consultants, in association with Dames and Moore. This study included a scoring of the site using the USEPA Hazard Ranking System (HRS). The HRS indicated little or no risk from the site with respect to air migration of materials, flammable or explosive materials, or direct contact with hazardous materials by on-site personnel. However, the HRS did indicate a significant threat to groundwater and surface water and the potential migration of contaminants by these two routes.

In 1987, a USEPA NUS Field Investigation Team (FIT) collected groundwater, surface water/sediment samples, one sewer water sample, soil samples and impoundment sediment samples. Analytical results indicated the following:

- Groundwater was contaminated with chlorobenzene, benzene, phenol, dimethylphenol, a phthalate and cobalt;
- The surface soils were contaminated with polynuclear aromatic hydrocarbons (PAHs), toluene, a phthalate and N-nitrosodiphenylamine;
- The impoundment sediment samples were contaminated with PAHS, polychlorinated biphenyls (PCBs), phthalates, chlorobenzene, benzene, substituted benzenes, trichloroethane, dichloroethane and other volatile organics;
- Sediments from Ellicott Creek contained PCBs in both upgradient and downgradient samples; and
- The sewer water sample contained phthalates, phenols, trichloroethene, trichloroethane, substituted benzenes, 2-methylnaphthane, chromium and lead.

The cleanout and subsequent closure of the impoundments in 1989, while performed under consent order, was completed without notification of NYSDEC. Cleanup criteria developed by CLTLs consultant did not conform with the current Recommended Soil Cleanup Objectives (RSCOs) developed by NYSDEC in their Technical and Administrative Guidance Memorandum (TAGM) of November 16, 1992 (TAGM HWR-92-4046). A report issued by CLTL's consultant indicated materials from the impoundments were excavated to below the water table. Bottom samples collected from the impoundments prior to the excavation identified 18 milligrams per kilogram (mg/kg) of 1,1,1-trichloroethane, trans-1,2-dichloroethene (0.063 mg/kg), 1,1-dichloroethane (0.031 mg/kg), trichloroethene (77 mg/kg), toluene (39 mg/kg), ethylbenzene (13 mg/kg), xylene (56 mg/kg), naphthalene (97 mg/kg), 2-methylnaphthalene (200 mg/kg), styrene (0.026 mg/kg), di-n-octylphthalate (67 mg/kg), 2-butanone (0.098 mg/kg), 4-methyl-2-pentanone (0.011 mg/kg), di-n-butylphthalate (47 mg/kg) and bis (2-ethylhexyl) phthalate (780 mg/kg). Also detected were several metals at elevated levels including arsenic, barium, cadmium, lead and selenium.

Prior to the 1989 cleanout and closure of the impoundments, sludges were analyzed for Extraction Procedure Toxicity (EP-TOX) in November 1980 and July 1982. The analysis indicated that the sludges were not hazardous waste by that criteria. It is not known if the sludges would have "failed"

the current Toxicity Characteristic Leaching Procedure (TCLP) test, which includes analysis for selected volatile organic compounds (VOCs). However, given the history of operations at the site, and the analysis of underlying soils for VOCs, it is possible that the sludges would have "failed" the TCLP if it had been performed. Therefore, the sludge might be characterized as hazardous waste by that test.

In 1991, two additional groundwater wells were installed for the post-closure monitoring program. However, analytical data was not submitted to NYSDEC until December 1993. In December 1993, CLTL provided analytical data from a sampling of all wells conducted on April 2, 1991. The results indicated that well B-5, which was installed as an upgradient well, contained the highest number of contaminants at the greatest concentrations. VOCs found in well B-5 included: benzene (530 $\mu\text{g/l}$); ethylbenzene (10 $\mu\text{g/l}$); toluene (350 $\mu\text{g/l}$); xylenes (54 $\mu\text{g/l}$); chlorobenzene (63 $\mu\text{g/l}$); vinyl chloride (410 $\mu\text{g/l}$); 1,1-dichloroethene (21 $\mu\text{g/l}$); 1,2-dichloroethene (670 $\mu\text{g/l}$); trichloroethene (710 $\mu\text{g/l}$); and tetrachloroethene (1500 $\mu\text{g/l}$).

Groundwater sampling was performed for this PSA in October 1993. When the sampling team arrived at the site, they discovered that well B-5 had been covered over and could not be located. The analytical data from the four original wells appeared to confirm the results of previous sampling. One downgradient well contained benzene (740 $\mu\text{g/l}$) and chlorobenzene (43 $\mu\text{g/l}$). Well B-1, which was intended to be an upgradient well, contained benzene (18 $\mu\text{g/l}$), chlorobenzene (310 $\mu\text{g/l}$), dichloroethene (10 $\mu\text{g/l}$) and vinyl chloride (36 $\mu\text{g/l}$).

CONCLUSIONS

Based on the information gathered for this PSA the following conclusions can be made.

Some of the organic chemicals rinsed from tankers cleaned at the facility are classified as U-listed wastes, as defined by 6 NYCRR Part 371.4(d). These include: Benzene (U019); Cresol (U052); Ethyl Acrylate (U113); Formaldehyde (U122); Phenol (U188); Pyridine (U196); Toluene (U220); and o-Toluidine (U328). Some of these compounds (benzene, phenol and toluene) were identified in impoundment sludge, sediment and/or post excavation samples. Impoundment sludges were analyzed for EP-TOX, which does not include criteria for selected VOCs. It is possible that the impoundment sludge would have "failed" the current TCLP analysis since this method includes criteria for selected VOCs which were identified in the sludge samples. As such, the impoundment sludge might be considered a hazardous waste by that test. Nevertheless, the impoundment sludge would be a listed hazardous waste as a result of the disposal of U-listed substances into the impoundments.

Samples collected from site wells indicate that groundwater has been impacted by site operations. Well B-5, installed in the anticipated upgradient direction, was found to contain some of the highest concentrations of VOCs observed on-site. This may indicate that possible contaminant source areas other than the impoundments exist at the site. Alternatively, the data may suggest groundwater mounding in proximity to the impoundments.

RECOMMENDATION

Concentrations of U-listed wastes [benzene (U019) and phenol (U188)] and other organic compounds (vinyl chloride, 1,2-dichloroethene (total), chlorobenzene and 2,4-dimethylphenol) have been identified in groundwater in excess of Class GA Standards. Discharge of this groundwater to Ellicott Creek, a Class B waterway, poses a threat to human health and the environment. Therefore, it is recommended that the NYSDEC consider classifying the Chemical Leaman Tank Lines Site (Site Number 915014) as a "Class 2" site and that a Remedial Investigation/Feasibility Study (RI/FS) be performed to confirm the proper closure of the impoundments, to determine if additional contaminant sources exist on-site, to delineate contaminated groundwater, and to evaluate appropriate methods to remediate soil and groundwater contamination.

1.0 INTRODUCTION

This report, prepared for the New York State Department of Environmental Conservation (NYSDEC), presents the results of a Preliminary Site Assessment (State Superfund Standby Contract Work Assignment No. D002520-3) of the Chemical Leaman Tank Lines (site), NYS Site Number 915014, EPA Site Number NYD048386205, located in the City of Tonawanda, Erie County, New York (Figure 1).

Dunn Engineering Company (now Rust Environment & Infrastructure of New York, Inc.), in association with TAMS Consultants, Inc. (TAMS), under contract with the New York State Department of Environmental Conservation (NYSDEC), performed this investigation in order to determine if the disposal of hazardous waste as defined by 6 NYCRR Part 371 can be documented, and if so, to compile information to determine if the site poses a significant threat to public health or the environment as a result of the presence of hazardous waste. This information is needed to either classify or delist the site as defined by Article 27, Title 13, of the Environmental Conservation Law (ECL).

In order to achieve the goals of the Preliminary Site Assessment (PSA), a review of the following information was performed:

- History of use;
- Topography;
- Geology and hydrology;
- Demographics of surrounding area;
- Proximity to possible receptors; and
- Previously noted contamination or regulatory actions.

Sources used to obtain the above listed information include the following:

- New York State Department of Environmental Conservation (NYSDEC);
- New York State Department of Health (NYSDOH);
- Aerial photographs;
- Topographic maps;
- Drilling logs for local wells;
- The previous NYSDEC Phase I investigation report; and
- The previous USEPA Region II FIT Site Inspection Report.

The following individuals and agencies were contacted:

- Mr. Mark Mateunas, NYSDEC, Bureau of Hazardous Site Control;
- Mr. Glenn May, NYSDEC, Bureau of Hazardous Site Control (Region 9);
- Mr. Michael Rivara, NYSDOH, Bureau Environmental Exposure Investigation;
- Mr. Art Hollar, Chemical Leaman Tank Lines;
- Mr. David Denk, NYSDEC, Regulatory Affairs;
- Mr. Mark Kendal, NYSDEC, Division of Fish and Wildlife; and
- Mr. Greg Ecker, NYSDEC, Region 9.



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NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NO. D 002520-3

SITE LOCATION MAP
CHEMICAL LEAMAN TANK LINES
City of Tonawanda, Erie Co., NY
Lat.: 43°00'49" Long.: 78°51'33"
USGS Tonawanda East Quadrangle

PROJECT NO. 35102.400

CONTOUR INTERVAL: 10 ft

SCALE: 1"=2000'

DATE: 3/3/94

FIGURE NO. 1

Literature sources used to complete this report are listed in Appendix A. Specific documents used in support of the text are listed in Appendix B. On July 19, 1990, a site reconnaissance was performed by Mr. George Moretti (DUNN) and Mr. Martin Derby (TAMS). Site photographs are presented in Appendix C. A site inspection report (USEPA Form 2070-13) is presented in Appendix D. A proposed NYSDEC Inactive Hazardous Waste Disposal Report is presented in Appendix E, whereas field sampling records constitute Appendix F.

2.0 SITE ASSESSMENT

2.1 SITE HISTORY

The Chemical Leaman Tank Lines (CLTL) terminal facility located at 470 Fillmore Avenue (Section 39.14, Block 2, Lot 2) in the City of Tonawanda, New York began operations at the site in 1963. The company is engaged primarily in the transport of industrial chemical products from supplier to customer (Table 1). The company also performs chemical waste hauling services to approved treatment, storage and disposal (TSD) facilities for off-specification chemical products which cannot be used or recycled (Document B-3). Site features are shown in Figure 2.

The CLTL facility dispatches and receives tanker trucks. After completing an assignment, the trucks return to the facility where they are cleaned and prepared for their next hauling assignment. A number of different cleaning processes are used at the facility including hot or cold water flushing, cleaning with caustic solution, solvent cleaning and high temperature steam cleaning. Some of the materials rinsed from the tanker trucks are classified as U-listed wastes, as defined by 6 NYCRR Part 371.4(d). These include: Benzene (U019); Cresol (U052); Ethyl Acrylate (U113); Formaldehyde (U122); Phenol (U188); Pyridine (U196); Toluene (U220); and o-Toluidine (U328) (Document B-6).

From 1963 to 1978, the rinse waters from these cleaning operations were discharged to a series of three surface impoundments. The three impoundments were used for pH adjustment, solids settling and aeration. Sludges accumulating within the impoundments would be a listed hazardous waste as a result of the disposal of U-listed substances into them. Wastewaters were discharged to the City of Tonawanda Wastewater Treatment Plant via the sanitary sewer system (Figure 3). This disposal practice was discontinued in 1978 following negotiations between Chemical Leaman and the NYSDEC.

In 1978, two of the surface impoundments (Nos. 1 and 2) were drained and an estimated 3,200 tons of settled solids (sludge) were excavated and removed off-site for disposal at the Newco (CECOS) landfill located in Niagara Falls, New York. The impoundments were re-excavated into the natural soil underlying the site.

Following the excavation of the sludge from the surface impoundments in 1978, several waste management practices were changed at the terminal facility. Two underground storage tanks (1,000 gallons each) were installed to receive tanker washdown wastewaters containing any of the 65 priority pollutants prohibited from discharge to the City's wastewater treatment plant (Table 2). The storage tanks received wastewater containing heavy metals and organic wastes, respectively. The collected washwaters are transported to Newco (CECOS) by Chemical Leaman for disposal. All drummed waste chemicals are hauled off-site for disposal at the Chem Met TSD facility located in Wyndotte, Michigan.

Table 1

LIST OF PRODUCTS TYPICALLY CLEANED
AT TONAWANDA FACILITY

Acetic acid
Acrylates
Adhesives
Alcohols
Aluminum sulfate
Ammonium nitrate
Aniline oil

Benzene (U019)
Butyl acetate
Butyl acrylate
Butyl amine
Butyl phenol

Calcium chloride
Caustic soda
p-Chlorotoluene
o-Chlorotoluene
Chlorobenzotrifluoride
Clay pellets
Cresol (U052)

Detergents
Dichlorotoluene
Diisobutylene
Dimethyl formamide

Epichlorohydrin
Ethyl acrylate (U113)
Ethyl hexyl chloroformate

Fatty acids
Fluorosilic acid
Formaldehyde (U122)
Fuel oil

Glycol

Hydrochloric acid

Latex
Lube oil

Methyl esters
Methylene diphenyl diisocyanate
Mineral spirits
Monoglycerides
Morpholine

Naphtha

Octyl phenol
Oil additives

Paint
Petroleum oil
Petroleum tar
Phenol (U188)
Phosphoric acid
Pine oil
Plasticizers
Plastics
Polyethylene glycol
Potassium silicate
Pyridine (U196)

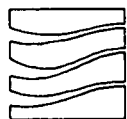
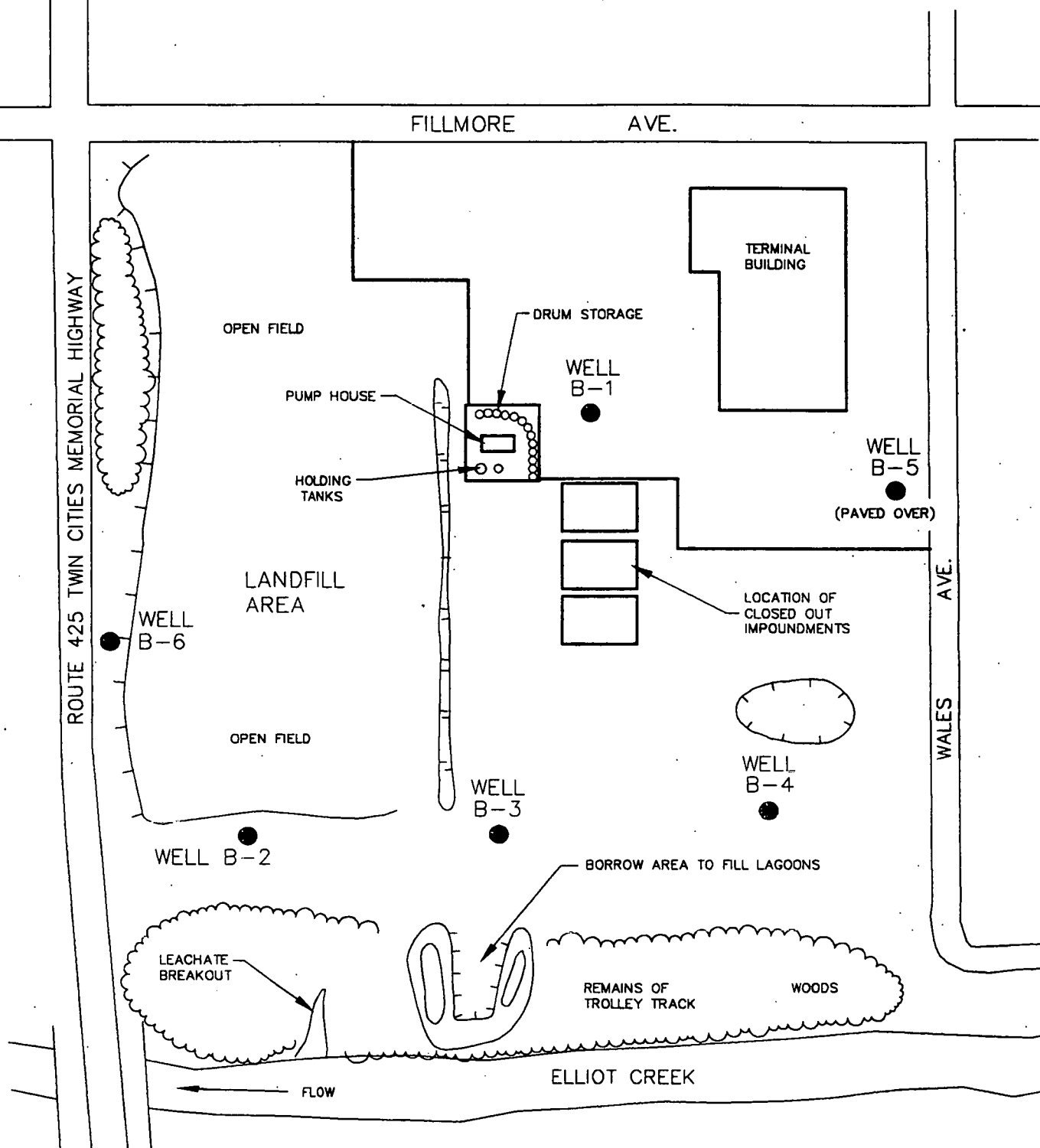
Resin
Rosin

Silicate of soda
Sodium chlorite
Sodium hypochlorite
Sulfuric acid

Tall oil
Tar
Toluene (U220)
o-Toluidene (U328)

Varnish
Vinyl acetate

Zinc ammonium chloride
Zinc chloride



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SITE FEATURES MAP

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NUMBER: D002520-3

CHEMICAL LEAMAN TANK LINES

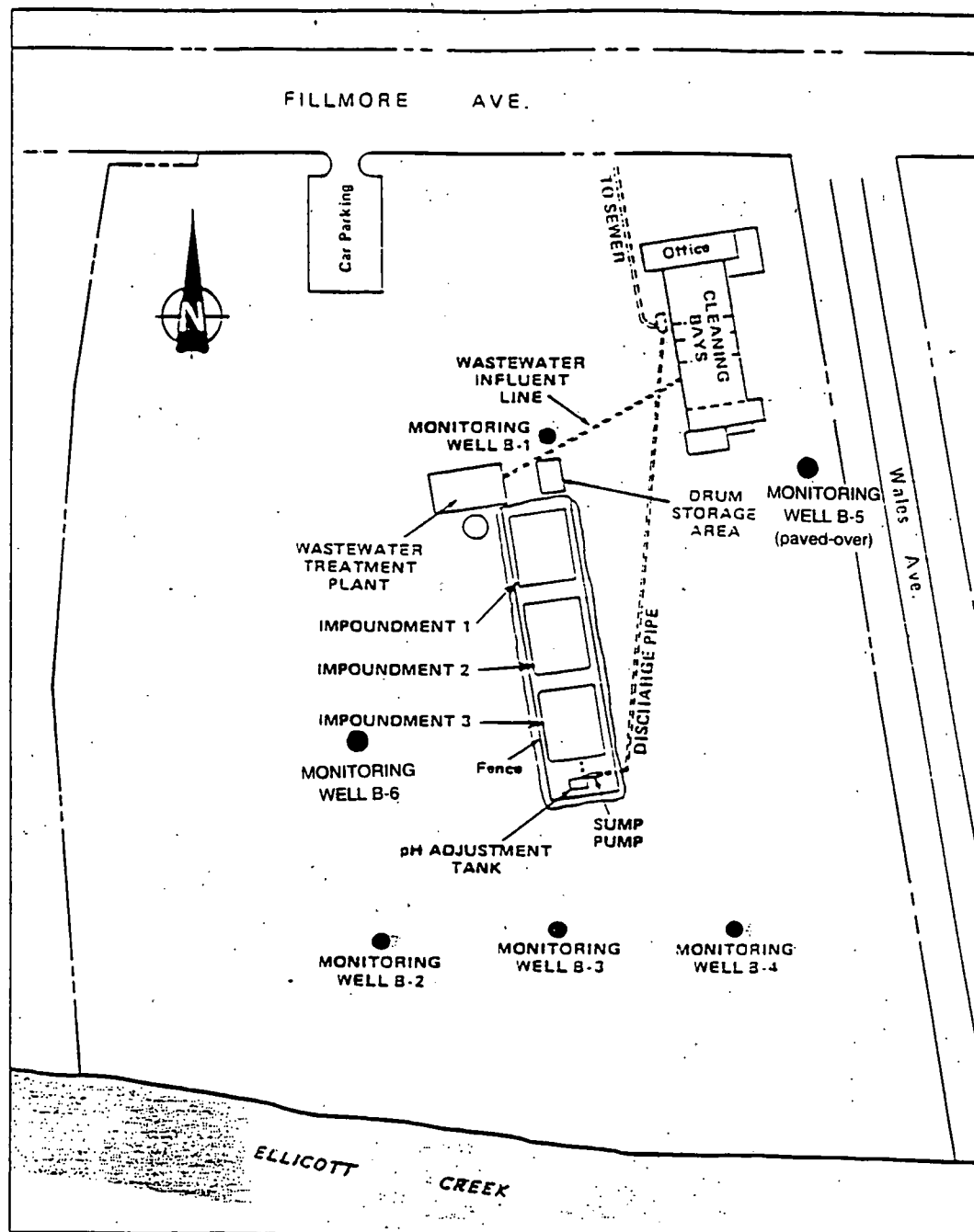
PROJECT NO. 35102.400

DATE 3/4/94

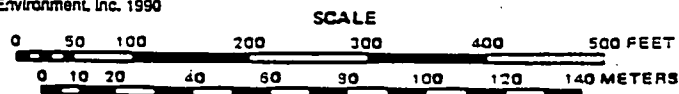
DWG. NO. 35102-01

SCALE NTS

FIGURE NO. 2



SOURCE: Ecology and Environment, Inc. 1990



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FORMER IMPOUNDMENT SYSTEM

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NUMBER: D002520-3

CHEMICAL LEAMAN TANK LINES

CITY OF TONAWANDA

ERIE COUNTY, NY

PROJECT NO. 35102.400

DATE 3/4/94

DWG. NO.

SCALE AS SHOWN

FIGURE NO. 3

Table 2

Pollutants Prohibited from Discharge to
City of Tonawanda Sewers

A. Listing of 65 Toxic Pollutants as outlined in "Appendix B"

1. Acenaphthene
2. Acrolein
3. Acrylonitrile
4. Aldrin/Dieldrin
- * 5. Antimony and Compounds
- * 6. Arsenic and Compounds
7. Asbestos
8. Benzene
9. Benzidine
- * 10. Beryllium and Compounds
- * 11. Cadmium and Compounds
12. Carbon Tetrachloride
13. Chlordane (technical mixture and metabolites)
14. Chlorinated Benzenes (other than dichlorobenzenes)
15. Chlorinated Ethanes (including 1,2 dichloroethane, 1,1,1-trichloroethane and hexachloroethane)
16. Chloroalkyl Ethers (chloromethyl, chloroethyl and mixed ethers)
17. Chlorinated Naphthalene
18. Chlorinated Phenols (other than those listed elsewhere; includes trichlorophenols and chlorinated cresols)
19. Chloroform
20. 2-Chlorophenol
- * 21. Chromium and Compounds
- * 22. Copper and Compounds
23. Cyanides
24. DDT and Metabolites
25. Dichlorobenzenes (1,2-1,3 and 1,4 dichlorobenzenes)
26. Dichlorobenzidine
27. Dichloroethylenes (1,1 and 1,2 dichloroethylene)
28. 2,4 Dichlorophenol
29. Dichloropropane and Dichloropropene
30. 2,4 Dimethylphenol
31. Dinitrotoluene
32. Diphenylhydrazine
33. Endosulfan and Metabolites
34. Endrin and Metabolites
35. Ethylbenzene
36. Fluoroanthene
37. Haloethers (other than those listed elsewhere; includes chlorophenylphenyl ethers, bromophenylphenyl ether, bis-(dischloroisopropyl) ether, bis-(chloroethoxy) methane and polychlorinated diphenyl ethers)
38. Halomethanes (other than those listed elsewhere; includes methylene chloromethylchloride, methylbromide, bromoform, dichlorobromomethane, trichlorofluoromethane, dichlorodifluoromethane)
39. Heptachlor and Metabolites
40. Hexachlorobutadiene
41. Hexachlorocyclohexane (all isomers)
42. Hexachlorocyclopentadiene
43. Isophorone
- * 44. Lead and Compounds
- * 45. Mercury and Compounds
46. Naphthalene
- * 47. Nickel and Compounds
48. Nitrobenzene
49. Nitrophenols (including 2,4 dinitrophenol, dinitroresol)
50. Nitrosamines
51. Pentachlorophenol
52. Phenol
53. Phthalate Esters
54. Polychlorinated Biphenyls (PCBs)
55. Polynuclear Aromatic Hydrocarbons (including benzantracenes, benzopyrenes, benzofluoroanthene, chrysenes, dibenzanthracenes, and indenopyrenes)
- * 56. Selenium and Compounds
- * 57. Silver and Compounds
58. 2,3,7,8 Tetrachlorodibenzo-p-Dioxin (TCDD)
59. Tetrachloroethylene
- * 60. Thallium and Compounds
61. Toluene
62. Toxaphene
63. Trichloroethylene
64. Vinyl Chloride
- * 65. Zinc and Compounds

*The term "compounds" includes organic and inorganic compounds.

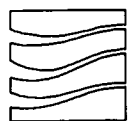
On January 30, 1987, CLTL was issued a consent order through the NYSDEC Division of Solid Waste to close the impoundments. CLTL began the closure process in the fall of 1988 with excavation of the impoundments from September 12 through October 15 (Document B-10). The excavated materials were hauled off site by Hazmat Environmental Group and Bush Trucking to an "appropriate industrial landfill" (Document B-9). In 1989, the Division of Hazardous Site Control requested review of the consent order since the site was listed on the Registry of Inactive Hazardous Waste Sites in New York State. During this review period, CLTL excavated additional material from the impoundments, backfilled them with soil materials excavated from an old trolley grading located on the south side of the property (Document B- 14) and completed closure of the impoundments without NYSDEC oversight (Document B- 15).

DUNN/TAMS conducted a site inspection in July 1990 as part of the data and records search. The field covering the western portion of the site revealed extensive evidence of fill material including construction and demolition debris. In discussions with site personnel, it was alleged that the fill area contained primarily the remains of a Tonawanda department store (JENSS), that burned down in November, 1975. Filling activities in this area are believed to have continued well into 1976. A 1972 aerial photograph (Figure 4) clearly shows the landfill to be active at that time. However, there is no documentation or evidence that this landfill was used for anything other than construction or demolition debris. Also noted during the site visit was the leachate breakout on the southern portion of the property which had been previously observed and sampled (Figure 2).

2.2 SITE TOPOGRAPHY

The site is located at an approximate elevation of 570 feet MSL in the City of Tonawanda, Erie County, New York. The site is a rectangular area bordered on the south by Ellicott Creek; on the west by Route 425, a major thoroughfare; on the north by a small stainless steel fabricating facility; on the east by a drafting facility and a warehouse and on the northeast by the RECRA Research facility. The original ground surface slope is to the south toward Ellicott Creek, but recent filling has created a relatively level surface across the northern two-thirds of the site. There was no standing surface water on the site during the DUNN/TAMS site inspection. In addition, a north-south trending linear depression exists approximately in the center of the site. This depression may be a remnant of an old trolley train line that ran north-south through the site along an elevated embankment, prior to use of the site by CLTL. Most of the embankment has been removed except for approximately 100 feet adjacent to the creek. The southwest corner of the site is low and marshy. Most of the southern border of the site is wooded with large willow trees.

The site is located in Zone C as designated by the Federal Emergency Management Agency (FEMA) flood zone insurance map (Reference A-2). Zone C includes areas outside the 500 year flood plain.



DUNN ENGINEERING COMPANY
12 Metro Park Road
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**1972 AERIAL PHOTOGRAPH SHOWING
IMPOUNDMENTS AND LANDFILL AREA**

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NUMBER: D002520-3

CHEMICAL LEAMAN TANK LINES

CITY OF TONAWANDA

ERIE COUNTY, NY

PROJECT NO. 35102.400

DATE 3/4/94

DWG. NO.

SCALE AS SHOWN

FIGURE NO. 4

2.3 GEOLOGY

2.3.1 Physiography

New York State is subdivided into nine distinct physiographic provinces on the basis of relief and geology. The site is located within the Erie-Ontario Lowlands which are characterized as relatively low, flat-lying terrain south of Lake Erie and Lake Ontario. In Erie County, the area within the lowlands typify the topography of an abandoned lake bed with elevations ranging from approximately 570 feet above Mean Sea Level (MSL) to approximately 1000 feet MSL. The site lies at an elevation of approximately 570 feet MSL and the topography in the vicinity of the site slopes gently toward Ellicott Creek, which borders the site to the south.

2.3.2 Surficial Deposits

Unconsolidated deposits of clay, sand and till of Pleistocene (glacial) and Holocene (recent) age underlie the site. These materials consist of glacially derived material deposited during the latter part of the Pleistocene, as well as lacustrine material (clay and silt) deposited during the Holocene. The United States Department of Agriculture (USDA) - Soil Conservation Service has classified the soils at the site as predominantly Udorthents, Smoothed and Urban Land - Niagara Complex (Reference A-3). Udorthent soils formed in deep, man-made cuts or fills characteristic of industrial sites, urban developments or construction sites. Urban Land - Niagara Complex soils consist of nearly level urban land and somewhat poorly drained Niagara soils which formed in silty lake-laid deposits.

Boring logs of four monitoring wells installed at the site in 1981 (wells B-1 through B-4) indicate the soils consist of a mixed fill and topsoil layer over a gray silt layer extending to approximately 8.0 feet deep. A sand layer was encountered in some borings to a maximum depth of 21.5 feet, below which red clay was encountered (Document B-12). A summary of the soil column for each well is listed below.

<u>Soil Type</u>	<u>Well B-1</u>	<u>Well B-2</u>	<u>Well B-3</u>	<u>Well B-4</u>
Mixed Fill/topsoil	0 - 2	0 - 8	0 - 0.3	0 - 1.5
Brown to gray silt and clay	-	8 - 18	0.3 - 8	1.5 - 8
Brown to gray fine sand	2 - 21.0	-	8 - 21.5	8 - 15
Red Clay	-	18 - 20.5	21.5 - 23.5	15 - 16.5
Bottom of Boring	21.0	20.5	23.5	16.5

2.3.3 Bedrock

The Camillus Shale of the Salina Group underlies the unconsolidated deposits of the site. The Camillus Shale varies from thin-bedded shale to massive mudstone and is colored gray to brownish gray with some beds showing a reddish to greenish tinge. The Camillus Shale is estimated to be 400 feet thick and dips southward at approximately 40 feet per mile (Reference A-6).

In 1981, the USGS determined bedrock at the site to be approximately 35 feet deep. However, a study conducted at the Columbus McKinnon Corporation property, located less than one-half mile west of the site, encountered bedrock at depths of 51-53 feet below the surface (Document B-13). Also, at a nearby NYSDEC Superfund site (i.e., Exolon Corporation), located approximately one-half mile to the north, bedrock was encountered at 78 feet below the surface (Document B-13). Topographically, these sites may have a difference in elevation of ten feet. This seemingly large change in depth to bedrock over a relatively short areal distance could indicate that a false bedrock surface (i.e., a glacial boulder) may have been encountered at the site.

2.4 HYDROGEOLOGY

2.4.1 Groundwater

A shallow water table exists in the sandy soil above the red clay. The depth to groundwater varies seasonally but is typically 3 to 10 feet below ground surface (BGS). Groundwater elevation data collected during and after the impoundment removal operation (Document B-10) appears to show groundwater flowing southwest toward Ellicott Creek. The permeability of the sandy soil is estimated to be approximately 1.0×10^{-3} centimeters per second (cm/sec). These granular deposits of sand encountered beneath the site provide permeable horizons for groundwater flow, whereas lacustrine clays and tills generally inhibit groundwater movement.

The Camillus Shale underlying the site is a very productive aquifer because of the extensive network of joints, fractures and especially solution cavities within the unit. Cavities in the Camillus Shale, that can yield significant quantities of water, were formed by the dissolution of gypsum by groundwater (Reference A-6).

The unconsolidated sediments, consisting of fine sands, silts and clays, may be hydraulically connected to Ellicott Creek. The red clay layer may limit the vertical migration of contaminants from previous facility operations (i.e., surface impoundments). No data exists to show a hydraulic connection between the overburden and the underlying bedrock. Bedrock wells at nearby sites indicate that bedrock may be sufficiently deep with several feet of glacial lacustrine deposits isolating bedrock from the shallow water bearing zone (Document B- 1 3). This would inhibit contaminants from the surface reaching bedrock.

2.5 PROXIMITY TO POTENTIAL RECEPTORS

2.5.1 Surface Water

Ellicott Creek, designated as a Class B waterway, borders the site to the south. This classification makes it suitable for primary contact recreation and any other uses, except as a source of drinking water. The nearest wetland to this site is 0.27 miles away. There are several other state-regulated wetlands within a three mile radius of the site (Document B-16). There is a Common Tern nesting area located 1.1 miles from the site along the Niagara River (Document B-16). The Common Tern is a state-designated endangered species. The Bald Eagle and Peregrine Falcon have also been sited near the Niagara River.

2.5.2 Population

Approximately 110,000 persons reside within a 3-mile radius (Document B- 11) with the nearest home located approximately 300 feet south of the site across Ellicott Creek. There are no wells used as a source of drinking water within three miles of the site. Drinking water for the Buffalo/Tonawanda area is supplied from the Niagara River (Reference A-10).

2.5.3 Agricultural Land

A review of topographic maps and aerial photographs, as well as a site inspection, indicated that the City of Tonawanda is a highly urbanized area. No agricultural land is located within three miles of the site.

2.5.4 Commercial Land

The site is bordered on the west by Route 425, a major thoroughfare; on the north by a small stainless steel fabricating facility; on the east by a drafting facility and a warehouse and on the northeast by the RECRA Research facility. The buildings surrounding the site are mostly commercial/industrial facilities.

3.0 TASK DISCUSSION

The information presented herein is based on the results of the data and records search (Task 1) of the State and local agency files. Evaluation of this information initiated development of a Site-Specific Work Plan/Health and Safety Plan (Task 2) and, additionally, implementation of intrusive (Task 4) investigations.

3.1 TASK 1 - DATA AND RECORDS SEARCH

The Data and Records Search indicated that from 1963 to 1978 a series of three surface impoundments were used to treat rinsewaters generated at the site. The rinsewaters were generated from cleaning activities associated with the handling of chemical tankers. In addition, the 1972 aerial photograph (Figure 4) documents the occurrence of landfilling activities in the northwest portion of the site. The 1990 site inspection revealed the presence of a leachate breakout along the southern portion of the property. Based on the documented history of operations at the site and the lack of data for adequate characterization, it was recommended that the site remain classified as "2A" (not enough data to adequately classify the site). Therefore, Tasks 2 through 6 (as outlined in the New York State Superfund Standby Contract) were implemented to complete a PSA for the site.

3.1.1 Previous Investigations

In 1978, the effluent wastewater that was discharged to the municipal sewer system from surface impoundments was analyzed by CLTL as required by the NYSDEC. Total organic carbon and total halogenated organics were detected at 825 milligrams per liter (mg/l) and 150 micrograms per liter ($\mu\text{g/l}$) respectively. Following negotiations with the NYSDEC, CLTL excavated accumulated solids in the impoundments, installed chemical storage tanks and modified their waste management practices. The excavated sludge was not analyzed for Extraction Procedure Toxicity (EP-TOX) prior to disposal in the Niagara Falls CECOS landfill. The practice of discharging wastewater containing trace quantities of priority pollutants was discontinued.

In November 1980 and July 1982, sludge samples were collected and analyzed for EP-TOX parameters. No waste constituents were detected in concentrations that would classify the sludges as hazardous (Document B-2).

The USGS collected groundwater samples from each of the four wells (B-1, B-2, B-3 and B-4) in July 1981 and September 1984. The samples were analyzed for organic compounds including priority and non-priority pollutants. Phenol was detected at 38 $\mu\text{g/l}$ in September 1984, which exceeded the water quality standards for Class GA groundwater in New York State. Several non-priority pollutants were also detected (Document B-1).

On several occasions between 1981 and 1984, water samples were collected from the surface impoundments and upgradient and downgradient monitoring wells by CLTL. These samples were analyzed for selected metals, phenols and total organic carbon (TOC). With the exception of phenols, iron, lead and manganese, all of the constituents analyzed were below the maximum

allowable concentrations for Class GA groundwater in New York State (Table 3). It should also be noted that during several of the sampling efforts, upgradient well B-1 contained higher concentrations of phenols, manganese and total organic carbon (TOC) than downgradient well B-4 (Document B-1).

In 1985, a NYSDEC Phase I Investigation was conducted at the site by Engineering-Science, Consultants, in association with Dames and Moore. This study included a scoring of the site using the EPA Hazard Ranking System (HRS). The HRS indicated little or no risk from the site with respect to air migration of materials, flammable or explosive materials or direct contact with hazardous materials by on-site personnel. However, the HRS did indicate a significant threat to groundwater and surface water, and the potential migration of contaminants by these two routes.

In May 1987, USEPA NUS Corp. FIT 2 collected four groundwater samples, two surface water/sediment samples, one sewer water sample, two soil samples and three impoundment sediment samples (Document B-8). Analytical results indicated the following:

- Groundwater was contaminated with chlorobenzene, benzene, phenol, dimethylphenol, a phthalate and cobalt;
- The surface soils were contaminated with polynuclear aromatic hydrocarbons (PAHs), toluene, phthalates and N-nitrosodiphenylamine;
- The impoundment sediment samples were contaminated with PAHs, polychlorinated biphenyls (PCBs), phthalates, chlorobenzene, benzene and substituted benzenes, trichloroethane, dichloroethane and other volatile organics;
- Sediments from Ellicott Creek contained PCBs in both upgradient and downgradient samples; and
- The sewer water sample was contaminated with phthalates, phenols, trichloroethane, substituted benzenes, 2-methylnaphthalene, chromium and lead.

In 1989, the impoundments were excavated of accumulated sludges under a consent order. This included excavation of approximately one foot of native soils below the impoundment bottom followed by backfilling. However, this remediation was completed without NYSDEC oversight and therefore the completeness of the removal action cannot be confirmed. In addition, "action levels" established by Chemical Leaman's consultant for soils removal did not conform with present day Recommended Soil Cleanup Objectives (RSCOS) established by NYSDEC in their Technical and Administrative Guidance Memorandum (TAGM) of November 16, 1992 (TAGM HWR-92-4046). The excavation of the impoundments attempted to remove a potential source of the groundwater contamination (Document B-9).

Table 3

**Groundwater Monitoring Data for Selected Parameters
CLTL Site***

Chemical Constituent	Class GA Water Std. in NYS	Well B-1 (Upgradient)	Well B-2	Well B-3	Well B-4
<u>September 1982**</u>					
Phenol	0.001	0.020	0.032	0.025	0.019
IOC	--	28	72	80	41
Iron	0.3	5.1	5.9	73	50
Lead	0.025	<0.005	<0.005	0.005	0.007
Manganese	0.3	1.3	0.10	0.91	0.91
<u>May 1982**</u>					
Phenol	0.001	0.027	0.039	0.025	0.020
IOC	--	32	79	72	19
Iron	0.3	5.6	10.0	9.5	300
Lead	0.025	0.06	0.13	<0.03	0.05
Manganese	0.3	1.2	0.22	0.65	1.5
<u>March 1982**</u>					
Phenol	0.001	0.018	0.014	0.044	0.012
IOC	--	40	46	54	16
Iron	0.3	2.5	5.6	9.9	48
Lead	0.025	<0.03	<0.03	0.03	0.04
Manganese	0.3	2.0	0.09	0.63	13
<u>December 1981**</u>					
Phenol	0.001	0.016	0.020	0.050	<0.01
IOC	--	42	74	51	14
Iron	0.3	73	28	34	0.4
Lead	0.025	<0.03	<0.03	<0.03	<0.03
Manganese	0.3	1.0	0.99	0.87	0.49
<u>May 1987***</u>					
Phenol	0.001	<0.01	<0.01	0.023	<0.01
Iron	0.3	69.4	34.3	201.0	44.5
Lead	0.025	0.08	0.026	0.20	0.038
Manganese	0.3	2.59	0.472	4.08	1.460
Zinc	0.5	0.339	0.089	7.41	0.160
Chromium	0.05	0.044	0.013	0.059	0.027
Benzene	BDL	<0.1	<0.420	0.570	<0.500
1,4-dichlorobenzene	--	<0.01	<0.01	<0.01	0.010
trans 1,2-dichloroethene	--	0.280	<0.420	<0.500	<0.500

* = All analytical results are expressed in mg/L unless otherwise indicated.

** = Chemical Leaman Tank Lines 1985.

*** = EPA 1987.

BDL = Below detection limit.

-- = No regulatory standard.

Table Source: Glenn May Report, April 11, 1990

A report issued by CLTL's consultant indicated materials from the impoundments were excavated to below the water table. Bottom samples collected from the impoundments prior to the excavation identified 18 milligrams per kilogram (mg/kg) of 1,1,1-trichloroethane, trans-1,2-dichloroethene (0.063 mg/kg), 1,1-dichloroethane (0.031 mg/kg), trichloroethene (77 mg/kg), toluene (39 mg/kg), ethylbenzene (13 mg/kg), xylene (56 mg/kg), naphthalene (97 mg/kg), 2-methylnaphthalene (200 mg/kg), styrene (0.026 mg/kg), di-n-octylphthalate (67 mg/kg), 2-butanone (0.098 mg/kg), 4-methyl-2-pentanone (0.011 mg/kg), di-n-butylphthalate (47 mg/kg) and bis (2-ethylhexyl) phthalate (780 mg/kg). Also detected were several metals at elevated levels including arsenic, barium, cadmium, lead and selenium.

In July 1990, a site visit was made as part of the data and records search by a DUNN/TAMS team. No samples were collected, but total organic vapor readings were made in collapsed holes in the landfill area located on the western side of the property. The total organic vapor readings were obtained using an HNU photoionization detector. No readings above background were detected.

Table 4 presents the results of groundwater samples from the five monitoring wells (B-1, B-2, B-3, B-4 and B-5) collected on April 12, 1991. These results were provided by Chemical Leaman at the request of NYSDEC and indicate that well B-5 contained the greatest number and highest concentration of contaminants (Document B-17). The total VOC concentration of 4318 $\mu\text{g/l}$ at B-5 was an order of magnitude greater than the next highest VOC total (143 $\mu\text{g/l}$) in well B-3 which contained benzene (130 $\mu\text{g/l}$) and dichlorobenzene (13 $\mu\text{g/l}$). Well B-1 contained three compounds including chlorobenzene (14 $\mu\text{g/l}$), vinyl chloride (13 $\mu\text{g/l}$), and 1,2-dichloroethene (54 $\mu\text{g/l}$). Well B-4 contained 16 $\mu\text{g/l}$ of chlorobenzene.

3.2 TASK A AND 2 - GLOBAL WORK PLAN AND SITE-SPECIFIC DOCUMENTS

3.2.1 Global Work Plan

Task A consisted of the preparation of a global Work Plan, Quality Assurance Project Plan (QAPP) and Master Health and Safety Plan. The project documents discussed information relevant to work planned at all of the nineteen PSA sites. The work plan included:

- A description of the major tasks to be performed;
- A detailed work assignment project schedule with milestones and deliverables;
- A staffing plan; and
- A detailed work assignment budget.

The global QAPP was prepared for the nineteen PSA site investigations. The QAPP provided descriptions, methodologies and Quality Assurance/Quality Control (QA/QC) procedures for the field activities proposed at each of the sites. General sampling and analytical protocol were also discussed.

Table 4

CHEMICAL LEAMAN - TONAWANDA, NEW YORK
ORGANIC ANALYSIS SUMMARY
SAMPLE DATE: APRIL 2, 1991

(all values in $\mu\text{g/L}$)

Compound	B-1	B-2	B-3	B-4	B-5	B-6	NYSDEC Class GA Standard
Base/Neutral Extractables							
1,3-Dichlorobenzene	--	--	<10	--	<10	--	5
1,4-Dichlorobenzene	--	--	--	<10	20	--	4.7
1,2-Dichlorobenzene	--	--	--	<10	34	--	4.7
Naphthalene	--	--	--	--	<10	--	10 G
Acid Extractables							
Phenol	--	--	<10	--	<10	--	b
2,4-Dimethylphenol	--	--	--	--	<10	--	b
2-Methylphenol	--	--	--	--	<10	--	b
4-Methylphenol	--	--	--	--	<10	--	b
Volatiles							
Benzene	--	--	130	--	530	--	ND
Ethylbenzene	--	--	--	--	10	--	5
Toluene	--	--	--	--	350	--	5
Total xylenes	--	--	--	--	54	--	5 ^c
Chlorobenzene	14	--	13	16	63	--	5
Vinyl chloride	13	<10 ^a	--	--	410	--	2
1,1-Dichloroethene	--	--	--	--	21	--	5
Total-1,2-Dichloroethene	54	--	--	--	670	--	5 ^a
Trichloroethene	--	--	--	--	710	--	5
Tetrachloroethene	--	--	--	<5	1,500	--	5

02[AD]CE7010:D3661/5005/19

Note: Where "<" precedes a number, that compound was detected below the sample quantitation.

Key:

^aNot detected in duplicate sample B-2D.

^bNYSDEC Class GA standard for phenolic compounds (total phenols) is 1 ppb.

^cApplies to individual isomers.

G = Guidance value.

Source: Ecology and Environment, Inc. 1991.

A Master Health and Safety Plan was prepared to provide the general health and safety procedures to be followed by all DUNN employees and subcontractors during site investigation activities. Activity-specific health and safety procedures were also included in the Master Health and Safety Plan.

3.2.2 Site Specific Documents

A site-specific Work Plan, QAPP and Health and Safety Plan (HASP) were developed to guide further investigations at each of the nineteen PSA sites. The site-specific Work Plan described the proposed site-specific activities, objectives, methodology and schedule of implementation for Tasks 3 through 6. The site-specific QAPP provided the analytical program for each site as well and other site-specific information. The site-specific HASP detailed site-specific information, including known or suspected contaminants, health and safety levels of protection required, special monitoring equipment, emergency information and procedures and a route to hospital map. The site-specific Work Plan, QAPP and HASP were prepared as one document and submitted to the NYSDEC for review and approval.

3.3 TASK 3 - NON-INTRUSIVE INVESTIGATIONS

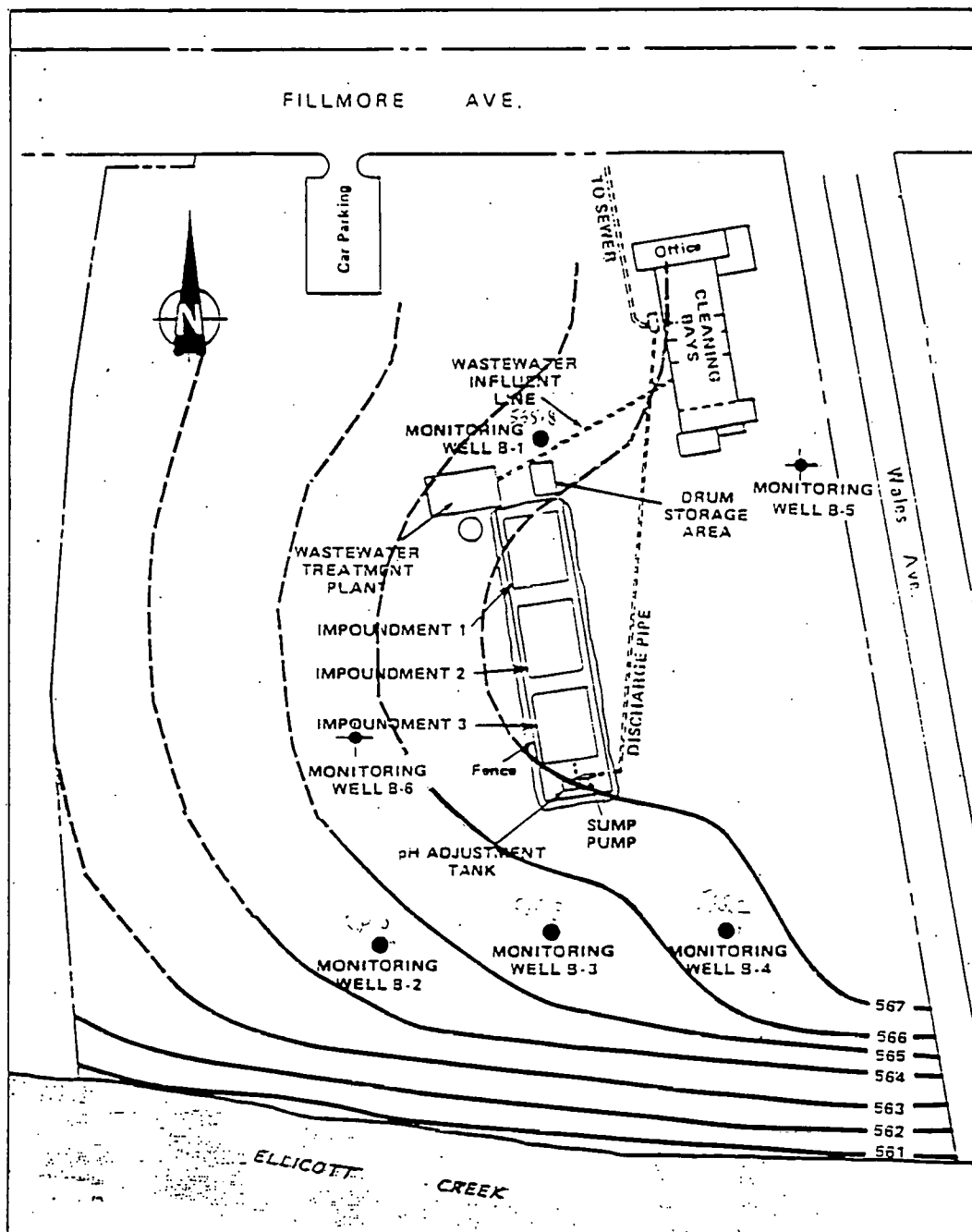
Non-intrusive investigations were not performed as part of this PSA.

3.4 TASK 4 - SUBSURFACE INVESTIGATIONS

3.4.1 Groundwater Sampling

DUNN personnel initiated a groundwater sampling program on October 13, 1993 to characterize overburden groundwater quality at the site. Analytical results would help determine whether the storage and treatment of hazardous waste at the site has adversely impacted the groundwater quality. In addition, groundwater elevation data obtained during the sampling was evaluated to determine the groundwater flow conditions at the site.

The groundwater sampling program consisted of sampling six existing groundwater monitoring wells at the site (Figure 5). However, only five wells were sampled during the program because monitoring well B-5, which was constructed as a flush-mount well, apparently has been paved over. Prior to sampling, a minimum of three well volumes were purged from each monitoring well. Well-dedicated Teflon bailers were used to purge the wells and collect the respective groundwater samples. Field parameter measurements including pH, specific conductance, temperature and turbidity were obtained during purging and recorded on Groundwater Sampling Logs which are presented in Appendix G. Groundwater samples were analyzed by Nytest Environmental, Inc. of Port Washington, New York for the full suite of Target Compound List/Target Analyte List (TCL/TAL) parameters according to Contract Laboratory Program methods from NYSDEC Analytical Services Protocol, December, 1991 (NYSDEC CLP/ASP, 12/91). Analytical results are discussed and summarized in Section 4.0.



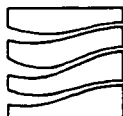
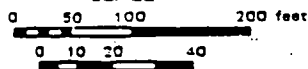
SOURCE: Ecology and Environment, Inc. 1990

KEY:

● Existing Monitoring Well

✱ Proposed Monitoring Well

SCALE



DUNN ENGINEERING COMPANY
12 Metro Park Road
Albany, NY 12205

MAY 1990 GROUNDWATER CONTOURS

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NUMBER: D002520-3

CHEMICAL LEAMAN TANK LINES

CITY OF TONAWANDA

ERIE COUNTY, NY

PROJECT NO. 35102.400

DATE 3/4/94

DWG. NO.

SCALE AS SHOWN

FIGURE NO. 5

4.0 RESULTS OF INVESTIGATION

4.1 GROUNDWATER ANALYTICAL RESULTS

Tables 5 and 6 summarize the organic and inorganic analytical results of groundwater samples obtained from site monitoring wells. The tables depict the concentration of the compounds/ analytes detected in groundwater at the respective sampling location. These results were compared to the groundwater standards/guidance values as defined by 6 NYCRR Part 703. Shaded values indicate a sample concentration for a particular constituent that exceeds the corresponding groundwater standard. All groundwater samples were analyzed for the full suite of TCL/TAL parameters.

Table 5 indicates that volatile organic compounds (VOC's) are the most prevalent contaminants detected as seven different VOC's were identified in site groundwater samples. Volatile organic concentrations exceeded New York State groundwater quality standards (6 NYCRR Parts 700-705) in four of the five wells sampled. Only well MW B-6 did not indicate the presence of volatile organic compounds above groundwater standards.

The highest concentration of any individual VOC was encountered in well MW B-3 (duplicate sample) where benzene was detected at 740 $\mu\text{g/l}$. The corresponding groundwater standard for this constituent is 0.7 $\mu\text{g/l}$. As depicted by the shaded values in the Table 5, benzene is also the most prevalent VOC at the site, having been detected above groundwater standards in four of five monitoring wells. The second most pervasive VOC detected was chlorobenzene. Well MW B-1 contained the greatest number of VOCS. The concentrations of four VOCS, consisting of vinyl chloride (36 $\mu\text{g/l}$), total 1,2-dichloroethene (10 $\mu\text{g/l}$), benzene (740 $\mu\text{g/l}$) and chlorobenzene (43 $\mu\text{g/l}$), were detected at concentrations exceeding groundwater standards. However, the highest total VOC concentration was detected in MW B-3 and MW B-3 DUP samples at concentrations of 685 $\mu\text{g/l}$ and 785 $\mu\text{g/l}$ respectively. Well MW B-3 is located downgradient of the former impoundments.

Nine semi-volatile organic compounds were detected in groundwater at the site. However, two compounds were detected at concentrations exceeding groundwater standards. Phenol was detected in the MW B-3 duplicate, and 2,4-dimethylphenol in both the primary and duplicate sample from well MW B-3. The reported phenol (MW B-3 DUP: 3 $\mu\text{g/l}$), and 2,4- dimethylphenol (MW B-3: 2 $\mu\text{g/l}$; MW B-3 DUP: 1 $\mu\text{g/l}$) concentrations exceed the NYSDEC groundwater standard of 1 $\mu\text{g/l}$ for total phenolic compounds. Pesticides/PCBs were not detected in any site groundwater samples.

Table 6 indicates the concentration of inorganic parameters detected in site groundwater samples. Six inorganic parameters were detected above either groundwater standards or guidance values; however, four of these constituents (iron, magnesium, manganese and sodium) are common constituents in groundwater in this area and do not appear to be site related. Antimony was detected above the guidance value (3 $\mu\text{g/l}$) in four of the five wells sampled (MW B-1, MW B-2, MW B-3 and MW B-6) while arsenic was detected above groundwater standards in two site wells (MW B-1 and MW B-3).

TABLE 5

Chemical Leaman Tank Lines Site
Summary Table of Organic Parameters
Groundwater Samples
 CLP Analytical Results

Analytes	Sample Location						NYS Groundwater Standard*
	MW B-1	MW B-2	MW B-3	MW B-3 (DUP)	MW B-4	MW B-6	
Volatile Organic Parameters							
Vinyl Chloride	35	ND	ND	ND	ND	ND	2.0
1,1 - Dichloroethane	4 J	ND	ND	ND	ND	ND	5.0
1,2 - Dichloroethene (total)	10	ND	ND	ND	ND	ND	5.0
Benzene	18	2 J	650 D	740 D	2 J	ND	0.7
Chlorobenzene	310 D	ND	54 D	64 D	4 J	ND	5.0
Ethylbenzene	ND	ND	2 J	2 J	ND	ND	5.0
Total Volatile TIC's	ND	ND	ND	ND	ND	ND	-
Semi-Volatile Organics							
Naphthalene	2 J	ND	ND	ND	ND	ND	10 (gv)
Bis(2 - Ethylhexyl)phthalate	1 J	6 J	ND	ND	1 J	ND	50.0
2,2' - oxybis(1 - Chloropropane)	ND	20	ND	ND	ND	ND	-
Isophorone	ND	8 J	ND	ND	ND	ND	50 (gv)
2,4 - Dimethylphenol	ND	ND	2 J	1 J	ND	ND	1.0
1,4 - Dichlorobenzene	ND	ND	ND	ND	2 J	ND	4.7
1,2 - Dichlorobenzene	ND	ND	ND	ND	2 J	ND	4.7
Hexachlorocyclopentadiene	ND	2 J	ND	ND	ND	ND	5.0
Phenol	ND	ND	ND	3 J	ND	ND	1.0
Total Semi-volatile TIC's	640	504	765	1367	275	51	-
Pesticides/PCB's							
All Parameters	ND	ND	ND	ND	ND	ND	0.1

Concentrations in micrograms per liter (ug/l)

* Standards as defined by 6 NYCRR Part 703 for Class GA groundwater

(gv) - NYSDEC guidance value

Shaded areas indicate concentration exceeds NYS Guidance Values or Standards

ND - Not Detected

B - This compound was also detected in an associated laboratory blank at a similar concentration

J - Indicates estimated concentration

D - Reported concentration from analysis of a diluted sample

TABLE 6

Chemical Leaman Tank Lines Site
Summary Table of Inorganic Parameters
Groundwater Samples
CLP Analytical Results

Analytes	Sample Location						NYS Groundwater Standard*
	MW B-1	MW B-2	MW B-3	MW B-3 (DUP)	MW B-4	MW B-6	
TAL Metals							
Aluminum	1620	1010 J	4660 J	4610 J	2580 J	4690 J	--
Antimony	36.1 J	34.1 J	80.2 J	56.9 J	ND	71.6 J	3 (gv)
Arsenic	42.9	ND	39.8 J	47.5 J	ND	ND	25
Barium	126 B	345	124 B	131 B	93.1 B	63.8 B	1000
Beryllium	ND	ND	ND	ND	ND	ND	3 (gv)
Cadmium	ND	ND	ND	ND	ND	ND	10
Calcium	125000	190000	291000	284000	131000	298000	--
Chromium	10.6 J	ND	11.4 J	ND	ND	10.5 J	50
Cobalt	20.3 B	ND	14.5 B	14.5B	ND	ND	--
Copper	14 B	ND	21.5 J	17.4 J	ND	15 J	200
Iron	25600	9890	28200	30500	6190	10400	300
Lead	12.6	ND	9.7	10.3	3.9	10.2	25
Magnesium	41200	64200	80900	79300	33900	73800	35000 (gv)
Manganese	1010	107	500	502	398	782	300
Mercury	ND	ND	ND	ND	ND	ND	2.0
Nickel	63.4 J	ND	25.5 J	20.7 J	ND	ND	--
Potassium	ND	ND	9240	9200	ND	2880 B	--
Selenium	ND	ND	ND	ND	ND	ND	10
Silver	7.5 J	4.3 J	ND	ND	ND	ND	50
Sodium	184000	254000	223000	222000	226000	64500	20000
Thallium	ND	ND	ND	ND	ND	ND	4 (gv)
Vanadium	12.3 B	8 B	22.5 B	22.9 B	11.3 B	18.9 B	--
Zinc	39	11 B	56	54.5	24	77.6	300
Misc. Compounds							
Total Cyanide	ND	ND	ND	ND	ND	ND	100

Concentrations in micrograms per liter (ug/l)

* Standards as defined by 6 NYCRR Part 703 for Class GA groundwater

(gv) - NYSDEC guidance value

Shaded areas indicate concentration exceeds NYS Guidance Values or Standards

ND - Not Detected

B - Reported value less than CRDL but greater than IDL

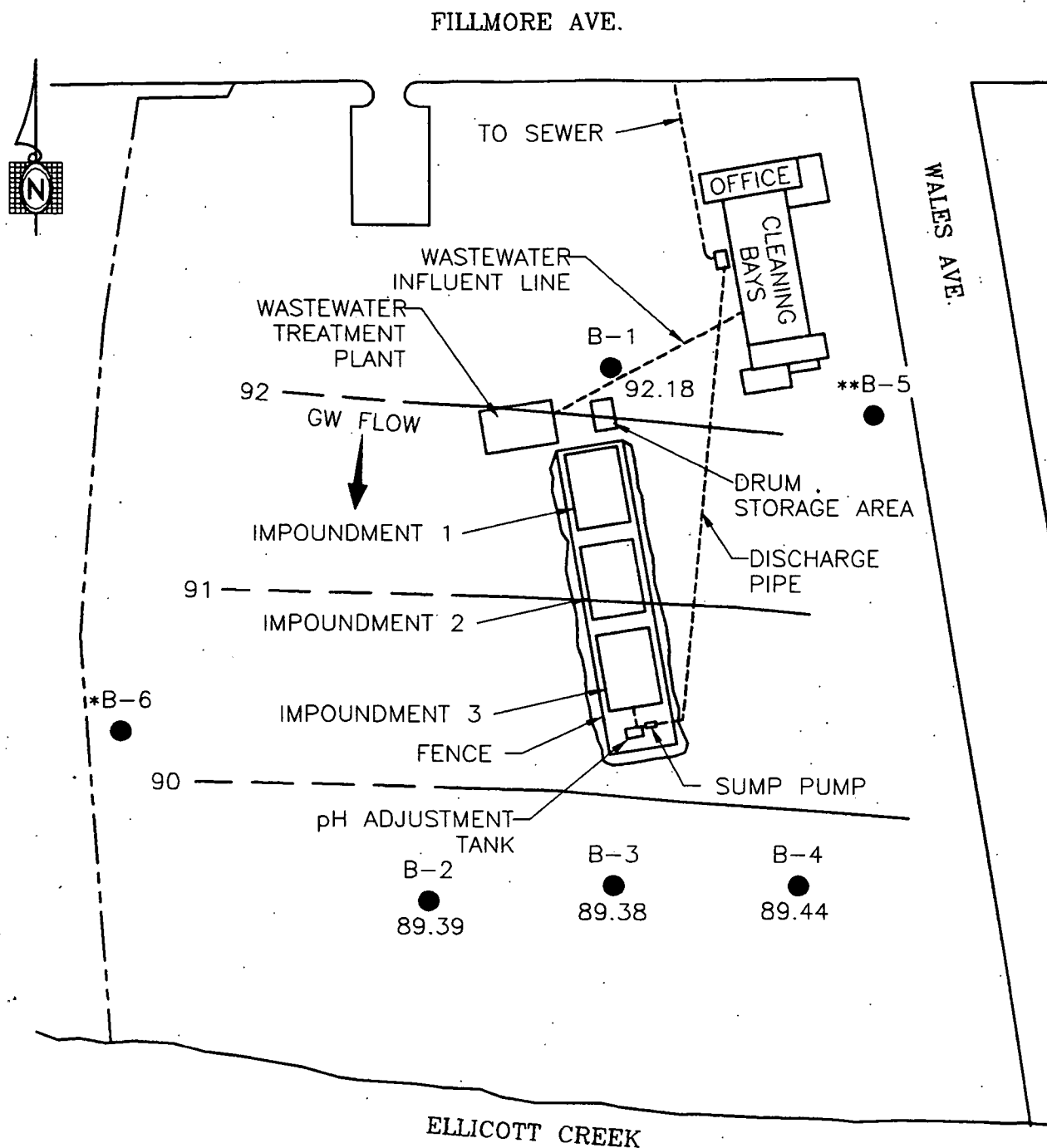
J - Indicates estimated concentration

The concentrations of inorganic constituents found in site groundwater do not appear to be site related. However, the concentrations of organic compounds indicate that the operations at the site have impacted groundwater beneath the site. Additionally, the concentrations of VOCs in groundwater present a potential threat to Ellicott Creek, a Class B waterway.

4.2 SITE HYDROGEOLOGY

Groundwater elevation data obtained during the groundwater sampling program was used to generate an overburden groundwater contour map. As shown in Figure 6, groundwater at the site generally flows toward the south under a hydraulic gradient of approximately 0.006 feet/foot and ultimately discharges into Ellicott Creek.

The analytical results of the April 2, 1991 groundwater samples provided by Chemical Leaman and the groundwater contours presented on Figure 5 suggest that a groundwater mound may exist (or may have existed) in proximity to the impoundments. However, no water level data is known to exist to support mounding to the extent that a component of groundwater flow from the impoundments to well MW B-5 (northeast) exists at the site.



* NO ELEVATION DATA AVAILABLE

** NOT SAMPLED (WELL COVERED, COULD NOT BE FOUND)

WELL TOP OF CASING REFERENCE ELEVATIONS OBTAINED FROM
GLENN MAY REPORT, APRIL, 1990



DUNN ENGINEERING COMPANY
495 Commerce Drive
Amherst, NY 14228

NYS DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D-002520-03

GROUNDWATER CONTOUR MAP:
OCTOBER 1993

CHEMICAL LEAMAN TANK LINES FACILITY

PROJECT NO. 35102

DATE March 1994

DWG. NO. 4A0086SD

SCALE Not To Scale

FIGURE NO. 6

5.0 CONCLUSIONS

- Industrial chemical products defined by 6 NYCRR Part 371.4 (d) as U-listed wastes, were routinely transported by tank trucks that were cleaned and dispatched from this facility.
- The impoundment system was designed to treat the rinse waters generated as a result of truck cleaning operations at the site. Sludges that accumulated in these impoundments would be considered a listed hazardous waste as a result of the disposal of U-listed substances into them.
- Sludge removed from the impoundments and analyzed for EP-TOX during the 1989 closeout did not exceed the EP-TOX regulatory limits.
- It is not known if the sludge would have "failed" the present day TCLP test to characterize a hazardous waste. While it can only be speculated that the sludge in the impoundments was a hazardous waste per the TCLP, it is likely that this was the case.
- The impoundments were excavated under consent order in 1989. However, this remediation was performed without NYSDEC oversight. "Cleanup Action Levels" established for the excavation do not conform to the present day RSCOs established by NYSDEC.
- Groundwater samples collected at the site have shown the presence of organic compounds and metals in excess of groundwater standards in several wells. Organic contaminants exceeding Class GA groundwater standards include vinyl chloride 1,1- dichloroethene, 1,2-dichloroethene, benzene, chlorobenzene, ethylbenzene, toluene, trichloroethene, tetrachloroethene, xylene, 1,4-dichlorobenzene and 1,2-dichlorobenzene. Metals exceeding Class GA groundwater standards include antimony, arsenic, iron, manganese, magnesium and sodium.
- Well MW B-5, thought to be upgradient of the impoundments, contained the greatest number of contaminants at the highest concentrations. Ten volatile compounds and two semi-volatile compounds were found at concentrations exceeding Class GA groundwater standards. Three contaminants including: benzene (530 $\mu\text{g/l}$); vinyl chloride (410 $\mu\text{g/l}$), and; TCE (710 $\mu\text{g/l}$), were present at concentrations that exceed their corresponding TCLP values. This indicates that groundwater extracted from this site may have to be handled as a hazardous waste.
- The presence of high concentrations of VOCs in well MW B-5 could indicate that a groundwater mound exists around the former impoundments, that contaminant sources other than the impoundments exist at the site, that an off site source exists upgradient of the site, or that some combination of these conditions exists.
- The concentrations of VOCs in groundwater present a potential threat to Ellicott Creek, a Class B waterway.

6.0 RECOMMENDATION

The contamination observed in on site wells exceeds Class GA groundwater standards. Discharge of this contaminated groundwater to Ellicott Creek, a Class B waterway which forms the southern boundary of the site, poses a threat to public health and the environment. These contaminants in groundwater appear to be derived from on-site sources. Therefore, it is recommended that the NYSDEC consider classifying the Chemical Leaman Tank Lines site (Site Number 915014) as a "Class 2" site and that a Remedial Investigation/Feasibility Study (RI/FS) be performed to confirm the proper closure of the impoundments, to determine if additional contaminant sources exist on-site, to delineate contaminated groundwater and to evaluate appropriate methods to remediate soil and groundwater contamination.

APPENDIX A

List of References

LIST OF REFERENCES

- A-1 Engineering-Science and Dames & Moore for NYSDEC. Phase I Investigation, Chemical Leaman Tank Lines, January 1986.
- A-2 Federal Emergency Management Agency (FEMA). Flood Insurance Rate Map (FIRM), Town of Tonawanda (Panel 360260 0001-0009) revised November 12, 1982.
- A-3 United States Department of Agriculture. Soil Survey of Erie County, New York, 1986.
- A-4 Buehler, Edward, Jr., and Tesmer, Irving, H. eds. Geology of Erie County, New York. Buffalo, New York. Buffalo Society of Natural Sciences Bulletin: Volume 21, No. 3, 1963.
- A-5 U.S. Geological Survey Topographic 7.5 Minute Quadrangle Maps, Buffalo, New York, northwest and Buffalo, New York, northeast, 1965; Tonawanda, New York, west and Tonawanda, New York, east, 1980.
- A-6 La Sala, A.M., Groundwater Resources of the Erie-Niagara Basin, New York, 1986.
- A-7 State of New York Official Compilation of Codes, Rules and Regulation, Department of State, Title 6C.
- A-8 Settig, Marshall, Handbook of Toxic and Hazardous Chemicals and Carcinogens. Park Ridge, New Jersey: Noyles Publications, 1985.
- A-9 Sax, N. Irving, eds. Dangerous Properties of Industrial Materials. New York, New York: Van Nostrand Reinhold Company, 1984.
- A-10 New York State Department of Health, New York State Atlas of Community Water System Sources, 1982.

APPENDIX B

List of Documents Cited

DOCUMENTS CITED

- B-1 Groundwater Monitoring Analytical Results, 1981 and 1984.
- B-2 Lagoon Sludges Analytical Results, 1980 and 1982.
- B-3 Inspection Report, Erie County Department of Environment and Planning, March 1979.
- B-4 Chemical Leaman Tank Lines Description of Operations, NYSDEC Phase I Report, 1986.
- B-5 History of Waste Management at the Chemical Leaman Tank Lines Facility, NYSDEC Phase I Report, 1986.
- B-6 List of Products Handled by Chemical Leaman Tank Lines Facility.
- B-7 Interview with Former CLTL Site Manager, NYSDEC Phase I Report, 1986.
- B-8 Analytical Results of Samples Collected During NUS FIT Inspection, conducted in May 1987.
- B-9 Lagoon Closure Report, June 1990.
- B-10 Summary Report Prepared by Glenn M. May, Region 9 NYSDEC, April 1990.
- B-11 Area Population Figures, The Buffalo News, January 25, 1991.
- B-12 Boring Logs CLTL Wells, August 1981.
- B-13 Bedrock Depths at Two Sites Near CLTL.
- B-14 Interview with Art Haller, CLTL
- B-15 Interview with Glenn May, NYSDEC, Region 9
- B-16 Letter from Greg G. Ecker, NYSDEC Region 9, Bureau of Wildlife.
- B-17 Letter from James A. Rakitsky, CLTL, to Mark Mateunas, NYSDEC, Central.

APPENDIX C

Color Photographs

Photo Log Description

Chemical Leaman Tank Lines Site

1. Chemical Leaman Tank Lines, north side of main building facing Fillmore Avenue.
Direction: Southeast
2. Chemical Leaman Tank Lines, west side of main building facing Route 425.
Direction: Southeast
3. Tanker being washed down in the terminal building (entrance) on west side of building.
Direction: Northeast
4. Tanker wash down terminal (exit area) on east side of building facing Wales Avenue.
Direction: Northwest
5. Former lagoon area with pumping well in the middle of the photo.
Direction: South
6. Former lagoon area with pumping well in the middle of the photo.
Direction: South
7. Pump house and the drum storage area.
Direction: West
8. Pump house and the drum storage area.
Direction: Northwest
9. Borrow pit used for the backfilling of the former lagoon area. Located in the southern section of the site by Ellicott Creek.
Direction: Northeast
10. Stained soil location located in the southern section of the site between the filled in area and Ellicott Creek (see the Site Map).
Direction: South
11. Open hole in the filled in field.
Direction: Northeast
12. The fill area on the west side of property (owned and maintained by Chemical Leaman).
Direction: North
13. The fill area (foreground) and the Chemical Leaman terminal in the background.
Direction: Southeast



Photo No. 1



Photo No. 2



Photo No. 3



Photo No. 4



Photo No. 5



Photo No. 6



Photo No. 7



Photo No. 8



Photo No. 9



Photo No. 10



Photo No. 11



Photo No. 12



Photo No. 13

APPENDIX D

USEPA Form 2070-13

EPA**POTENTIAL HAZARDOUS WASTE SITE****SITE INSPECTION REPORT****PART 1—SITE LOCATION AND INSPECTION INFORMATION****I. IDENTIFICATION**

01 STATE

NY

02 SITE NUMBER

D048386205

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)

Chemical Leaman Tank Lines, Inc.

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER

470 Filmore Avenue

03 CITY

Tonawanda

04 STATE

NY

05 ZIP CODE

14150

06 COUNTY

Erie

07 COUNTY

CODE 029

08 CONG

DIST 38

09 COORDINATES

LATITUDE

43 00'49.0"N

LONGITUDE

078 51'33.0"W

10 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE☐ B. FEDERAL☐ C. STATE☐ D. COUNTY☐ E. MUNICIPAL☐ F. OTHER☐ G. UNKNOWN**III. INSPECTION INFORMATION**

01 DATE OF INSPECTION

07 / 19 / 90

MONTH DAY YEAR

02 SITE STATUS

☒ ACTIVE☐ INACTIVE

03 YEARS OF OPERATION

1983

BEGINNING YEAR

N/A

ENDING YEAR

☐ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA☐ B. EPA CONTRACTOR☐ C. MUNICIPAL☐ D. MUNICIPAL CONTRACTOR☐ E. STATE☒ F. STATE CONTRACTOR☐ G. OTHER

Dunn Geoscience/TAMS Consultants

(Specify)

05 CHIEF INSPECTOR

George Moretti

06 TITLE

Environmental Scientist

07 ORGANIZATION

Dunn Geoscience Engineering Co.

08 TELEPHONE NO.

(716)691-3866

09 OTHER INSPECTORS

Martin Derby

10 TITLE

Hydrogeologist

11 ORGANIZATION

TAMS Consultants, Inc.

12 TELEPHONE NO.

(716)831-8084

13 SITE REPRESENTATIVES INTERVIEWED

Art Haller

14 TITLE

Maintenance

Supervisor

15 ADDRESS

470 Filmore Avenue

Tonawanda, NY 14150

16 TELEPHONE NO.

(716)695-1440

17 ACCESS GAINED BY

(Check one)

☒ PERMISSION☐ WARRANT

18 TIME OF INSPECTION

1430

19 WEATHER CONDITIONS

Sunny, clear, windy, 90 degrees Fahrenheit

IV. INFORMATION AVAILABLE FROM

01 CONTACT

Mark Mateunas

02 OF (Agency/Organization)

NYSDEC

03 TELEPHONE NO.

(516)457-0639

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM

Ted Yen

05 AGENCY

06 ORGANIZATION

TAMS Consultants

07 TELEPHONE NO.

(201)338-6680

08 DATE

08 / 28 / 90

MO. DAY YR.

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

IDENTIFICATION

01 STATE
NY02 SITE NUMBER
D04838626

II. WASTE STATE, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES

(Check all that apply)

☐ A. SOLID ☐ E. SLURRY
☐ B. POWDER, FINES ☒ F. LIQUID
☐ C. SLUDGE ☐ G. GAS

☐ D. OTHER _____
(Specify)

02 WASTE QUANTITY AT SITE

(Measures of waste quantities

must be independent)

TONS _____

CUBIC YARDS 743

(150,000 gallons)

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

☒ A. TOXIC ☐ H. IGNITABLE
☐ B. CORROSIVE ☐ I. HIGHLY VOLATILE
☐ C. RADIOACTIVE ☐ J. EXPLOSIVE
☒ D. PERSISTENT ☐ K. REACTIVE
☒ E. SOLUBLE ☐ L. INCOMPATIBLE
☐ F. INFECTIOUS ☐ M. NOT APPLICABLE
☒ G. FLAMMABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	Unknown		Removed prior to closure.
OLW	OILY WASTE	Unknown		All 3 treatment lagoons have been backfilled. NYSDEC
SOL	SOLVENTS			notified but not present during the closure.
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	20-25	55-gallon drums	
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			Stained soils on the edge of Ellicott Creek from the fill
MES	HEAVY METALS	Unknown		material.

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONC.
OCC	Phenols	108-95-2	Lagoons	0.01-0.05	mg/l
MES	Manganese	7439-96-5	Lagoons	0.09-0.13	mg/l
MES	Iron	15438-31-0	Lagoons	2.5-300	mg/l
OCC	TOC	Not Applicable	Lagoons	Unknown	
OLW	Waste Oil	999	Lagoons	14-79	mg/l
MES	Lead	7439-92-1	Lagoons	0.130	mg/l
		(See Attachment A)			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Not Applicable		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Dunn Geoscience Engineering Co./TAMS Consultants, Inc. site reconnaissance-7/19/90

Dames & Moore site inspection - 4/18/85.

NYSDEC Phase I report on Chemical Leaman Tank Lines prepared by Dames & Moore, 1986.

USEAP Site Inspection report prepared by NUS Corp FIT - 2/10/89

IV. Hazardous Substances (See Appendix for most frequently cited CAS Numbers) Attachment A

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Cobalt	7440-48-4	Surface Impoundments	58	ug/l
SOL	Acetone	67-64-1	Surface Impoundments	2,500-14,000	ug/l
SOL	2-butanone	78-93-3	Surface Impoundments	17-98	ug/kg
SOL	Benzene	71-43-2	Surface Impoundments	570	ug/l
SOL	Toluene	108-88-3	Surface Impoundments	14-890	ug/kg
SOL	Total xylenes	1330-20-7	Surface Impoundments	75-1000	ug/kg
OCC	Chloromethane	74-87-3	Surface Impoundments	~350	ug/kg
OCC	Bromomethane	74-96-4	Surface Impoundments	~250	ug/kg
OCC	Vinyl chloride	75-01-4	Surface Impoundments	~230	ug/kg
OCC	1,1-dichloroethane	107-06-2	Surface Impoundments	31	ug/kg
OCC	trans-1,2-dichloroethene	156-60-5	Surface Impoundments	40	ug/kg
OCC	trans-1,2-dichloroethene	156-60-5	Surface Impoundments	280	ug/l
OCC	1,1,1-trichloroethane	71-55-8	Surface Impoundments	18-970	ug/kg
OCC	1,1,1-trichloroethane	71-55-8	Surface Impoundments	130	ug/l
OCC	Trichloroethene	79-01-6	Surface Impoundments	83	ug/l
OCC	4-methyl-2-pentanone	108-10-1	Surface Impoundments	11	ug/kg
OCC	Chlorobenzene	108-90-7	Surface Impoundments	18	ug/kg
OCC	Ethylbenzene	100-41-4	Surface Impoundments	27-320	ug/kg
OCC	Styrene	100-42-5	Surface Impoundments	28-2100	ug/kg
OCC	Phenol	108-95-2	Surface Impoundments	23-2900	ug/l
OCC	1,3-dichlorobenzene	571-73-1	Surface Impoundments	~10	ug/l
OCC	1,4-dichlorobenzene	106-46-7	Surface Impoundments	10	ug/l
OCC	1,2-dichlorobenzene	95-50-1	Surface Impoundments	~4	ug/l
OCC	4-methylphenol	106-4-5	Surface Impoundments	~480	ug/l
OCC	2,4-dimethylphenol	105-67-9	Surface Impoundments	~1-8	ug/l
OCC	Benzoic acid	65-85-0	Surface Impoundments	~7-180	ug/kg
OCC	Benzoic acid	65-85-0	Surface Impoundments	56,000	ug/l
OCC	1,2,4-trichlorobenzene	120-82-1	Surface Impoundments	~12,000	ug/kg
OCC	Naphthalene	91-20-3	Surface Impoundments	5500-210,000	ug/kg
OCC	2-methylnaphthalene	91-57-8	Surface Impoundments	49000-1,300,000	ug/kg
OCC	2-methylnaphthalene	91-57-8	Surface Impoundments	3200	ug/l
OCC	Acenaphthene	83-32-9	Surface Impoundments	~1400	ug/kg
OCC	Fluorene	86-73-7	Surface Impoundments	~980	ug/kg
OCC	N-nitrosodiphenylamine	86-30-8	Surface Impoundments	~3700	ug/kg
OCC	Hexachlorobenzene	118-74-1	Surface Impoundments	~3800	ug/kg
OCC	Phenanthrene	85-01-8	Surface Impoundments	350-5100	ug/kg
OCC	Anthracene	120-12-7	Surface Impoundments	~2500	ug/kg
OCC	di-n-butyl phthalate	84-74-2	Surface Impoundments	1700-23,000	ug/kg
OCC	di-n-butyl phthalate	84-74-2	Surface Impoundments	~120	ug/l
OCC	Fluoranthene	208-44-0	Surface Impoundments	~1100-6600	ug/kg
OCC	Pyrene	129-00-0	Surface Impoundments	~810-12,000	ug/kg
OCC	bis(2-ethylhexyl)phthalate	117-81-7	Surface Impoundments	8100-2,900,000	ug/kg
OCC	bis(2-ethylhexyl)phthalate	117-81-7	Surface Impoundments	2200	ug/l
OCC	Chrysene	218-01-9	Surface Impoundments	~3400-9300	ug/kg
OCC	di-n-octyl phthalate	117-84-0	Surface Impoundments	~320	ug/kg
OCC	di-n-octyl phthalate	117-84-0	Surface Impoundments	67000-200,000	ug/l
OCC	Indeno(1,2,3-cd)pyrene	193-39-5	Surface Impoundments	~150-3800	ug/kg
OCC	Benzo(g,h,i)perylene	191-24-2	Surface Impoundments	5300	ug/kg
OCC	Aroclor 1248	12672-29-6	Surface Impoundments	32,000	ug/kg
OCC	Aroclor 1260	11069-82-5	Surface Impoundments	50-27,000	ug/kg

EPA	POTENTIAL HAZARDOUS WASTE SITE		I. IDENTIFICATION	
	SITE INSPECTION REPORT		01 STATE	02 SITE NUMBER
	PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS		NY	D048386205

II. HAZARDOUS CONDITIONS AND INCIDENTS				
01 X_A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: 0	02 X OBSERVED (DATE: 5/12/87) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential for groundwater contamination exists due to the detection of organic contaminants in onsite wells. USEPA-NUS Corp. FIT 2 sampled the monitoring wells on 5/12/87 and found that the groundwater was contaminated with benzene, phenol, dichlorobenzenes, 2,4-dimethylphenol, di-n-octyl phthalate, benzoic acid, and cobalt.				
01 X_B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: 100000	02 X OBSERVED (DATE: 5/12/87) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential exists for surface water contamination due to groundwater seepage into Ellicott Creek which forms the southern border of the site. Also, contaminated runoff from soils may enter Ellicott Creek. This creek is used for recreational purposes such as boating and fishing.				
01 X_C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED: 100000	02 X OBSERVED (DATE: 5/12/87) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential for air contamination exists as the ponds were used for evaporation. During cleaning of the tanker trucks, small amounts of chemicals may volatilize. Also, contaminated soils may become airborne during dry periods.				
01 X_D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: 52,000	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential exists as many flammable chemicals were detected in the environmental samples.				
01 X_E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: 16,000	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential for direct contact exists. Orange stained soils (0.1 acres) were found near the southern edge of the site by Ellicott Creek. Contaminated groundwater and contaminated runoff soils may enter Ellicott Creek. This is used for recreational purposes.				
01 X_F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: 1 (acre)	02 X OBSERVED (DATE: 5/12/87) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential for soil contamination. The western edge of the site is an open area (greater than 4 acres) which has been filled in by construction debris. Orange stained soils have been found near the southern edge of Ellicott Creek. Soils could also be contaminated by the migration of contaminants in the groundwater. Also, USEPA-NUS FIT 2 collected samples that were contaminated with various PAH's, PCBs, phthalates, and other organics.				
01 X_G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: 100000	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
There is little potential for drinking water contamination exists. However, the intakes are situated near the mouth of Ellicott Creek, 1.4 stream miles away.				
01 X_H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED: 	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
The potential for worker exposure/injury exists since the soils are contaminated with various PAH's, PCBs, phthalates, and other volatile organics.				
01 X_I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED: 100000	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	X POTENTIAL	ALLEGED	
Some potential for population exposure exists if the contaminants migrate into Ellicott Creek which is used for recreational purposes.				

EPA

POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION

SITE INSPECTION REPORT

01 STATE 02 SITE NUMBER

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

NY D048386205

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 X J. DAMAGE TO FLORA

02 X OBSERVED (DATE: 5/12/87)

___ POTENTIAL

___ ALLEGED

Damage to flora exists since the USEPA-NUS Corp. FIT 2 site inspection indicated chlorotic vegetation surrounding the lagoons.

01 X K. DAMAGE TO FAUNA

02 ___ OBSERVED (DATE: _____)

X POTENTIAL

___ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

The potential for damage to fauna exists. Bioaccumulation of contaminants in fish may occur.

The *Haliaeetus leucocephalus* and the *Falco peregrinus* were sighted along the Niagara River.

A *Sterna hirundo* nesting area is near the Niagara intakes. This species is listed as a NYS endangered species.

01 X L. CONTAMINATION OF FOOD CHAIN

02 ___ OBSERVED (DATE: _____)

___ POTENTIAL

___ ALLEGED

04 NARRATIVE DESCRIPTION

The potential for food chain contamination exists since Ellicott Creek supports a recreational fishery.

01 X M. UNSTABLE CONTAINMENT OF WASTES

02 X OBSERVED (DATE: 1985, 1987)

___ POTENTIAL

___ ALLEGED

(Spills/Runoff/Standing liquids, Leaking drums)

03 POPULATION POTENTIALLY AFFECTED: 16,000

04 NARRATIVE DESCRIPTION

The settling ponds were observed to be unlined by the Dames & Moore site inspection team in 1985 and the NUS Corp. FIT in 1987.

However, the settling ponds were backfilled in 1989 and are not presently used.

01 X N. DAMAGE TO OFFSITE PROPERTY

02 ___ OBSERVED (DATE: _____)

X POTENTIAL

___ ALLEGED

04 NARRATIVE DESCRIPTION

No damage to offsite property was observed during the site inspection. However, the potential exists since surface soils may become airborne or brought off site by vehicular traffic.

01 X O. CONTAMINATION OF SEWERS, STORM DRAINS, OR WWTPs

02 X OBSERVED (DATE: 5/12/87)

___ POTENTIAL

___ ALLEGED

04 NARRATIVE DESCRIPTION

NUS FIT 2 site inspection indicated contamination of sewers. The sewer samples contained lead, chromium, phenols, toluene, benzoic acid, phthalates, trichloroethene, trichloroethane and 2-methylnaphthalene.

01 ___ P. ILLEGAL/UNAUTHORIZED DUMPING

02 ___ OBSERVED (DATE: _____)

___ POTENTIAL

___ ALLEGED

04 NARRATIVE DESCRIPTION

No evidence of illegal dumping was observed during the site inspection.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 100,000

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Site reconnaissance conducted by Dunn Geoscience Engineering Co./TAMS Consultants, Inc. on 7/19/90

Site inspection performed by Dames & Moore in 1985 and USEPA-NUS Corp. FIT 2 in 1987.

EPA FORM 2070-13(7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION

PART 4—PERMIT AND DESCRIPTIVE
INFORMATION

I. IDENTIFICATION

01 STATE

NY

02 SITE NUMBER

D048386205

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE(Specify)				
X_H. LOCAL(Specify) Tonawanda	363	1/87	10/87	Discharge of volatile-free
☐ I. OTHER(Specify)				effluent into the sanitary
☐ J. NONE				sewer system.

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
X_A. SURFACE IMPOUNDMENT	3,200	Tons	☐ A. INCINERATION	X A. BUILDINGS ON SITE
☐ B. PILES			☐ B. UNDERGROUND INJECTION	
X_C. DRUMS, ABOVE GROUND	15-20	Drums	X_C. CHEMICAL/PHYSICAL	
☐ D. TANK, ABOVE GROUND			☐ D. BIOLOGICAL	06 AREA OF SITE
X_E. TANK, BELOW GROUND	2,000	Gallons	☐ E. WASTE OIL PROCESSING	_____ 1 _____ (Acres)
☐ F. LANDFILL			☐ F. SOLVENT RECOVERY	
☐ G. LANDFARM			☐ G. OTHER RECYCLING/RECOVERY	
☐ H. OPEN DUMP			☐ H. OTHER _____	
☐ OTHER _____ (Specify)			(Specify)	

07 COMMENTS

All three lagoons were excavated and backfilled in 1988. All washdown material is pumped via two holding tanks to their pre-treatment facility, treated and then pumped to the Tonawanda wastewater treatment plant. Sludge material produced by the pre-treatment facility is loaded in large containers and taken away for proper disposal.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

X A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINER, BARRIERS, ETC.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE:

☐ YES

X_ NO

02 COMMENTS

The lagoons were excavated and backfilled in 1988.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Dunn Geoscience Engineering Co./TAMS Consultants, Inc. site reconnaissance - 7/19/90

Dames & Moore site inspection report - 1985

USEPA-NUS Corp. FIT 2 site inspection report - 1987

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 5-WATER, DEMOGRAPHIC, AND ENVIRONMENTAL
DATA

I. IDENTIFICATION

01 STATE

NY

02 SITE NUMBER

D048386205

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY

(Check as applicable)

SURFACE WELL

COMMUNITY A. ☒ XB. ☐NCN-COMMUNITY C. ☐D. ☐

02 STATUS

ENDANGERED

AFFECTED

MONITORED

A. ☐B. ☐C. ☐D. ☐E. ☐F. ☐

03 DISTANCE TO SITE

A. ☐ >3 (mi)B. ☐ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING☐ B. DRINKING

(Other sources available)

COMMERCIAL, INDUSTRIAL,
IRRIGATION

(No other water sources available)

☒ C. COMMERCIAL, INDUSTRIAL,
IRRIGATION

(Limited other sources available)

☐ D. NOT USED,
UNUSEABLE02 POPULATION SERVED BY GROUNDWATER ☐ 003 DISTANCE TO NEAREST DRINKING WATER WELL ☐ >3 (mi)

04 DEPTH TO GROUNDWATER

☐ 3 to 10 (ft)

05 DIRECTION OF GROUNDWATER

FLOW

☐ South

06 DEPTH TO

AQUIFER

OF CONCERN

☐ 3 to 10 (ft)

07 POTENTIAL

YIELD OF

AQUIFER

1,730,000(gpd)

08 SOLE SOURCE AQUIFER

☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

There are no drinking wells in the vicinity of the site. There are four monitoring wells on-site that are sampled periodically.

Also, there are five industrial wells within 3 miles of the site.

10 RECHARGE AREA

☒ YES

COMMENTS

☐ NO

Moderate recharge zone.

11 DISCHARGE AREA

☒ YES

COMMENTS: Groundwater may discharge

☐ NO

to the adjacent Ellicott Creek

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION
DRINKING WATER SOURCE☐ B. IRRIGATION, ECONOMICALLY
IMPORTANT RESOURCES☐ C. COMMERCIAL, INDUSTRIAL☐ D. NOT CURRENTLY
USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:

AFFECTED:
(Y/N)

DISTANCE TO SITE

Ellicott Creek

☒ Y

<0.01 (mi)

Niagara River

☐ N

1.5 (mi)

(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE

A. 18,000

NO. OF PERSONS

TWO (2) MILES OF SITE

B. 52,000

NO. OF PERSONS

THREE (3) MILES OF SITE

C. 100,000

NO. OF PERSONS

02 DISTANCE TO NEAREST
POPULATION☐ 0.06 (mi)

03 NUMBER OF BUILDING WITHIN TWO(2)MILES OF SITE

☐ > 8000

04 DISTANCE TO NEAREST OFF-SITE BUILDING

☐ 0.01 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is surrounded by sparse suburban population. It is near the edge of the City of Tonawanda which is densely populated.

The site is located in a heavily commercial/industrial zone.

POTENTIAL HAZARDOUS WASTE SITE EPA SITE INSPECTION REPORT PART 5-WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA		I. IDENTIFICATION <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">01 STATE NY</td> <td style="width: 50%;">02 SITE NUMBER D048386205</td> </tr> </table>		01 STATE NY	02 SITE NUMBER D048386205				
01 STATE NY	02 SITE NUMBER D048386205								
VI. ENVIRONMENTAL INFORMATION									
01 PERMEABILITY OF UNSATURATED ZONE (Check one) ☐ A. 10-6 to 10-8 cm/sec ☐ B. 10-4 to 10-6 cm/sec ☒ C. 10-4 to 10-3 cm/sec ☐ D. GREATER THAN 10-3 cm/sec									
02 PERMEABILITY OF BEDROCK (Check one) ☒ A. IMPERMEABLE (Less than 10-6 cm/sec) ☐ B. RELATIVELY IMPERMEABLE (10-4 to 10-6 cm/sec) ☐ C. RELATIVELY PERMEABLE (10-2 to 10-4 cm/sec) ☐ D. VERY PERMEABLE (Greater than 10-2 cm/sec)									
03 DEPTH TO BEDROCK 3.5 (ft)	04 DEPTH OF CONTAMINATED SOIL ZONE 3 (ft)	05 SOIL pH 6.6-8.1							
06 NET PRECIPITATION 5.0 (in)	07 ONE YEAR 24 HOUR RAINFALL 2.1 (in)	08 SLOPE SITE SLOPE 0-3 %	DIRECTION OF SITE SLOPE South TERRAIN AVERAGE SLOPE 0-3 %						
09 FLOOD POTENTIAL SITE IS IN 100 YEAR FLOODPLAIN		10 SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY							
11 DISTANCE TO WETLANDS (5 acre minimum) ESTUARINE OTHER A. >3 (mi) B. 0.27 (mi)		12 DISTANCE TO CRITICAL HABITAT (of endangered species) 1.1 (mi) ENDANGERED SPECIES: See Site Description Section 14							
13 LAND USE IN VICINITY DISTANCE TO: <table style="width: 100%;"> <tr> <td style="width: 33%;">COMMERCIAL/INDUSTRIAL</td> <td style="width: 33%;">RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FOREST, OR WILDLIFE RESERVES</td> <td style="width: 33%;">AGRICULTURAL LANDS PRIME AG LAND AG LAND</td> </tr> <tr> <td>A. On-site (mi)</td> <td>B. 0.06 (mi)</td> <td>C. >2 (mi) >1</td> </tr> </table>				COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FOREST, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND AG LAND	A. On-site (mi)	B. 0.06 (mi)	C. >2 (mi) >1
COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FOREST, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND AG LAND							
A. On-site (mi)	B. 0.06 (mi)	C. >2 (mi) >1							
14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY The site is a rectangular area bordered on the south by Ellicott Creek. The original ground surface sloped to the south toward the creek, but recent filling has created a relatively level surface across the northern two-thirds of the site. The southwest corner of the site is low and marshy. Endangered Species: 1. <i>Haliaeetus leucoceph</i> - Bald Eagle 2. <i>Falco peregrines</i> - peregrine falcon These are migratory birds that were sited along the Niagara River. There is also a common tern nesting area near the Niagara River intakes. Common terns are a threatened species in New York State.									
VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports) NYSDEC Phase I report on the Chemical Leaman site prepared by Dames & Moore - 1986. Interview with Dave Denk of NYSDEC Regulations, 7/18/90. Interview with Mark Kandal of NYSDEC Fish and Wildlife, 7.20/90. Heritage Maps, Coastal Fish and Wildlife Maps, and NYSDEC Wetlands Maps supplied by the Region 9 Office. Dames & Moore site inspection report on Chemical Leaman - 1985. EPA FORM 2070-13(7-81)									

EPA		POTENTIAL HAZARDOUS WASTE SITE		I. IDENTIFICATION	
		SITE INSPECTION REPORT PART 6-SAMPLE AND FIELD INFORMATION		01 STATE NY	02 SITE NUMBER D048386205
II. SAMPLES TAKEN					
SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO		03 ESTIMATED DATE RESULTS AVAILABLE	
GROUNDWATER	None				
SURFACE WATER	None				
WASTE	None				
AIR	None				
RUNOFF	None				
SPILL	None				
SOIL	None				
VEGETATION	None				
OTHER	None				
III. FIELD MEASUREMENTS TAKEN					
01 TYPE	02 COMMENTS				
Air Monitoring	HNU-PID readings not above background.				
Radiation Monitoring	Monitor 4 mini-rad readings not above background.				
IV. PHOTOGRAPHS AND MAPS					
01 TYPE ☐ X_GROUND ☐ X_AERIAL		02 IN CUSTODY OF: Dunn Geoscience Engineering Co./ SUNY Buffalo at Amherst Undergraduate Library (Name of organization or individual)			
03 MAPS X YES ☐ NO	04 LOCATION OF MAPS DUNN Geoscience Corp./TAMS Consultants, Inc.				
V. OTHER FIELD DATA COLLECTED (provide narrative description)					
Field notes in the custody of George Moretti - Dunn Geoscience Engineering Co.					
VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)					
1966 aerial photographs from SUNY Buffalo US Dept. of the Interior, Geological Survey Topographic Map, 7.5 minute series - "Tonawanda West, NY" - photorev. 1980. Site reconnaissance conducted by Dunn Geoscience Engineering Co./TAMS Consultants, Inc. on 7/19/90					

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7-OWNER INFORMATION

I. IDENTIFICATION

01 STATE NY	02 SITE NUMBER D048386205
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II. CURRENT OWNER(S)

PARENT COMPANY(If applicable)

01 NAME Chemical Leaman Tank Lines, Inc.		02 D+B NUMBER		08 NAME Chemical Leaman Tank Lines, Inc.		09 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.) 470 Filmore Avenue		04 SIC CODE 7542		10 STREET ADDRESS(P.O.Box, RFD#,etc.) Box 200		11 SIC CODE	
05 CITY Tonawanda	06 STATE NY	07 ZIP CODE 14150	12 CITY Lionville		13 STATE PA	14 ZIP CODE 19353	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		10 STREET ADDRESS(P.O.Box, RFD#,etc.)		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE	

III. PREVIOUS OWNER(S)(List most recent first)

IV. REALTY OWNER(S)(if applicable;list most recent first)

01 NAME Unknown Railroad Company		02 D+B NUMBER		01 NAME Unknown		02 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.) Unknown		04 SIC CODE		03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE		03 STREET ADDRESS(P.O.Box,RFD#,etc.)		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE	

V. SOURCES OF INFORMATION(Cite specific references, e.g., state files, sample analysis, reports)

NYSDEC Region 9, Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Report.
Dames & Moore site inspection report - 1985
Interview with Chemical Leaman employee during Dunn Geoscience Engineering Co./TAMS Consultants, Inc. site reconnaissance - 7/19/90

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8-OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE NY	02 SITE NUMBER D048386205
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II. CURRENT OPERATOR(Provide if different from owner)

OPERATOR'S PARENT COMPANY(If applicable)

01 NAME Same as owner	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

III. PREVIOUS OPERATOR(S)(List most recent first;
provide only if different from owner)

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

V. SOURCES OF INFORMATION(Cite specific references, e.g., state files, sample analysis, reports)

NYSDEC Region 9, Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Report

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9-GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE NY	02 SITE NUMBER D048386205
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II. ON-SITE GENERATOR

01 NAME Chemical Leaman Tank Lines, Inc.	02 D+B NUMBER	
03 STREET ADDRESS(P.O.Box,RFD#,etc.) 470 Filmore Avenue	04 SIC CODE 7542	
05 CITY Tonawanda	06 STATE NY	07 ZIP CODE 14150

III. OFF-SITE GENERATOR(S)

01 NAME None	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

IV. TRANSPORTER(S)

01 NAME None	02 D+B NUMBER	08 NAME	09 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	10 STREET ADDRESS(P.O.Box, RFD#,etc.)	11 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER		
03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE	03 STREET ADDRESS(P.O.Box,RFD#,etc.)	04 SIC CODE		
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION(Cite specific references, e.g., state files, sample analysis, reports)

NYSDEC Division of Hazardous Waste Remediation, Inactive Hazardous Waste Disposal Report.

EPA		POTENTIAL HAZARDOUS WASTE SITE		I. IDENTIFICATION	
		SITE INSPECTION REPORT		01 STATE	02 SITE NUMBER
		PART 10 - PAST RESPONSE ACTIVITIES		NY	D048386205
II. PAST RESPONSE ACTIVITIES					
01 ☐ A. WATER SUPPLY CLOSED		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ C. PERMANENT WATER SUPPLY PROVIDED		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ D. SPILLED MATERIAL REMOVED		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☒ E. CONTAMINATED SOIL REMOVED		02 DATE: 1977 _____		03 AGENCY _____	
04 DESCRIPTION An estimated 3200 tons of sludge was removed from lagoons 1 and 2					
01 ☐ F. WASTE REPACKAGED		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☒ G. WASTE DISPOSED ELSEWHERE		02 DATE: 1978 _____		03 AGENCY _____	
04 DESCRIPTION The excavated sludge from the lagoons was disposed in the CECOS landfill in Niagara Falls.					
01 ☐ H. ON SITE BURIAL		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ I. IN SITU CHEMICAL TREATMENT		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ J. IN SITU BIOLOGICAL TREATMENT		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ K. IN SITU PHYSICAL TREATMENT		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ L. ENCAPSULATION		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ M. EMERGENCY WASTE TREATMENT		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ N. CUTOFF WALLS		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ P. CUTOFF TRENCHES/SUMP		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					
01 ☐ Q. SUBSURFACE CUTOFF WALL		02 DATE: _____		03 AGENCY _____	
04 DESCRIPTION No previous history					

EPA

POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION

SITE INSPECTION REPORT

01 STATE

02 SITE NUMBER

PART 10 - PAST RESPONSE ACTIVITIES

NY

D048386205

II. PAST RESPONSE ACTIVITIES(Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ S. CAPPING/COVERING

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ T. BULK TANKAGE REPAIRED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ U. GROUT CURTAIN CONSTRUCTED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ V. BOTTOM SEALED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ W. GAS CONTROL

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ X. FIRE CONTROL

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ Y. LEACHATE TREATMENT

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ Z. AREA EVACUATED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ 1. ACCESS TO SITE RESTRICTED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☐ 2. POPULATION RELOCATED

02 DATE: _____

03 AGENCY _____

04 DESCRIPTION

No previous history

01 ☒ 3. OTHER REMEDIAL ACTIVITIES

02 DATE: 1989 _____

03 AGENCY _____

04 DESCRIPTION

All three lagoons were excavated and backfilled in 1989.

The four monitoring wells were sampled on August 2, 1989. Vinyl chloride (320 ug/l) and benzene (410 ug/l) were detected.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state file sample analysis, reports)

Dunn Geoscience Engineering Co./TAMS Consultants, Inc. site reconnaissance - 7/19/90

NYSDEC Region 9 files on the Chemical Leaman site.

APPENDIX E

Proposed Updated NYSDEC Registry Form

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

CLASSIFICATION CODE:	2	REGION:	9	SITE CODE:	915014										
NAME OF SITE:	Chemical Leaman Tank Lines			EPA ID:	NYD048386205										
STREET ADDRESS:	470 Filmore Avenue														
TOWN/CITY:	Tonawanda	COUNTY:	Erie	ZIP:	14206										
SITE TYPE:	<table border="1"> <tr> <td>Open Dump</td> <td>Structure</td> <td>Lagoon</td> <td>Landfill</td> <td>Treatment Pond</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td align="center">X</td> </tr> </table>				Open Dump	Structure	Lagoon	Landfill	Treatment Pond					X	ESTIMATED SIZE:
Open Dump	Structure	Lagoon	Landfill	Treatment Pond											
				X											
					1 Acre										

SITE OWNER/OPERATOR INFORMATION:

Current Owner Name: Chemical Leaman Tank Lines, Inc.

Current Owner Address: 102 Pickering Way, P.O. Box 200, Lionville, PA 19353

Owner(s) During Use: Chemical Leaman Tank Lines, Inc.

Operator During Use: Chemical Leaman Tank Lines, Inc.

Operator Address: 470 Filmore Avenue, Tonawanda, NY

Period Associated with Hazardous Waste: 1963 to Present

SITE DESCRIPTION:

Garage and storage yard for tank trailers and tractors. Waste referred to as "heels" from nondedicated tankers which have been used for incompatible products are drummed and removed off-site to an approved TSD facility. Tank washings, after draining, passed through three lagoons where floating material was skimmed off. Solids settling in the ponds were periodically removed to an approved off-site TSD facility. Discharge from the ponds went to the Tonawanda Sewage Treatment Plant. The use of the lagoons for toxic pollutants was discontinued in 1978. Six wells have been installed on site. Groundwater samples collected in 1981 and 1982 indicated that concentrations of phenols, iron, lead and manganese exceeded groundwater standards. A Phase I Investigation was completed in 1985. Groundwater samples collected in 1987 exceeded groundwater standards for phenols, iron, lead, manganese, zinc and chromium. Chlorobenzene, benzene, dimethylphenol, phthalate and cobalt have also been found in groundwater.

During the summer and fall of 1988, Chemical Leaman Tank Lines, Inc., excavated the three lagoons to a depth of 14 to 16 feet. Substrate samples were collected and analyzed as the excavation progressed. The six on-site wells have been sampled and analyzed to assess the effectiveness of the excavation. Groundwater standards were exceeded for dichlorobenzene, ethylbenzene, toluene, xylenes, 1,1-dichloroethene, trichloroethene and tetrachloroethene in samples collected on April 2, 1991. Groundwater standards were exceeded for benzene, chlorobenzene, vinyl chloride, and 1,2-dichloroethene in samples collected on October 13, 1993.

A Preliminary Site Assessment (PSA) has been completed.

HAZARDOUS WASTE DISPOSED:

TYPE		QUANTITY USED
Benzene (U019)	Phenol (U188)	Unknown
Cresol (U052)	Pyridine (U196)	
Ethylacrylate (U113)	Toluene (U220)	
Formaldehyde (U122)	o-Toluidine (U328)	

ANALYTICAL DATA AVAILABLE:

Surface Water:

☐

Groundwater:

☒

Soil:

☒

Sediment:

☒

None:

☐**CONTRAVENTION OF STANDARDS:**

Groundwater:

☒

Drinking Water:

☐

Surface Water:

☐

Air:

☐**LEGAL ACTION:**

TYPE			STATUS	
None	State	Federal	Negotiation in Progress	Order Signed
X				

REMEDIAL ACTION:

None	Proposed	Under Design	In Progress	Completed
X				

NATURE OF ACTION:

None

GEOTECHNICAL INFORMATION:

Soil Type: Sands and silts overlying clay

Groundwater Depth: 3 to 10 feet

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Class GA groundwater standards were exceeded for arsenic, chromium and lead. Groundwater has also exceeded Class GA standards with respect to benzene; chlorobenzene; ethylbenzene; vinyl chloride; toluene; xylene; TCE; PCE; and other volatile compounds. Monitoring is required to assess the effectiveness of lagoon excavation. Further investigation is required to evaluate the extent of impacted groundwater.

ASSESSMENT OF HEALTH PROBLEMS:

Analysis of groundwater samples from on-site monitoring wells detected several volatile organic compounds and metals in concentrations exceeding standards. Groundwater is not used; area residents are supplied with public water. However, there appears to be a connection between groundwater under the site and the bordering Ellicott Creek. Since the lagoon excavation in 1978, wastewater containing hazardous constituents has not been discharged into the lagoons. The potential for direct contact with on-site soils has not been evaluated. However, the site is enclosed by a fence.

APPENDIX F

Field Sampling Records

Sample ID B-1
 Location MW-B-1
 Samplers RKS/DWS
 Client NYSDEC

Date 10/13/93
 Project CHEMICAL LEAMAN TANK LINES
 Project # 35102.400
 Sample/Type: Soil; Sediment; Surface Water;
☒ GW Waste: Other _____

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Well Size/Type 1.5" ID
 Total Well Depth 9.66'
 Depth to Water 8.49'
 Height of Water Column 11.17

Gals of Standing Water 1.79
 Gals to Purge (x5) 8.95
 Gals Actually Purged 7.0
 Gals/ft (2" ID=0.16) 4"=0.65 6" ID=1.47

II. WELL PURGING: Start 10:00 a.m. Stop 1:30 p.m. Discharge Rate (GPM) _____
 Equipment: ☒ Pump CENTRIFUGAL ☐ Bailer _____

Well behavior during purging: MW-B-1 WAS PUMPED DRY AFTER 2 GALLONS, 4.5 GALLONS, AND 7 GALLONS. RECHARGE WAS SLOW TO MODERATE, AND A SULFUR ODOR WAS PRESENT WHILE PURGING.

III. SAMPLE COLLECTION: Time _____ ID# B-1
 Method: ☒ Bailer DEDICATED PVC ☐ Other _____
 Containers (2) 40 ml VOAS; (1) 1 pt. CYANIDE; (1) 1 pt. METALS; (1) 1/2 gal. BHA/PESTICIDES
 Sample Appearance and Odor CLEAR WITH SLIGHT SULFUR ODOR.

IV. FIELD MEASUREMENTS:

Temp	<u>15.5°C</u>	_____	_____	_____
pH	<u>7.31</u>	_____	_____	_____
Conductivity	<u>1633 µS/cm</u>	_____	_____	_____
Turbidity	<u>42.3</u>	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather PARTLY SUNNY, @ 45°, 5-10 mph W. WIND
 Comments _____

Sample ID B-2
 Location MW-B-2
 Samplers RKS/DWS
 Client NYSDEC

Date 10/13/93
 Project CHEMICAL LEAKAGE TANK LINES
 Project # 35102.400
 Sample/Type: Soil; Sediment; Surface Water;
☒ (GW) Waste: Other _____

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Well Size/Type 1.5" ID.
 Total Well Depth 19.94
 Depth to Water 11.60
 Height of Water Column 8.34

Gals of Standing Water 1.33
 Gals to Purge (x5) 6.65
 Gals Actually Purged 7
 Gals/ft (2"ID=0.16) 4"=0.65 6"ID=1.47

II. WELL PURGING: Start 11:00 a.m. Stop 11:15 a.m. Discharge Rate (GPM) _____
 Equipment (Pump) CENTRIFUGAL Bailer _____
 Well behavior during purging: GOOD RECHARGE.

III. SAMPLE COLLECTION: Time _____ ID# B-2
 Method: (Bailer) DEDICATED PVC Other _____
 Containers (6) 40 ml. VOAS; (3) 1 pt. CYANIDE; (3) 1 qt. METALS; (3) 1/2 gal. RNA/PESTICIDES
 Sample Appearance and Odor CLEAR w/ BROWN TINT, SLIGHT SULFUR ODOR

IV. FIELD MEASUREMENTS:

Temp	<u>11.6°C</u>	_____	_____	_____
pH	<u>7.35</u>	_____	_____	_____
Conductivity	<u>2.11 uS/cm</u>	_____	_____	_____
Turbidity	<u>42.2</u>	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather Mostly Sunny, 24-25°C, 5-10 mph W. wind.
 Comments MEASUREMENTS WERE TAKEN FROM TOP OF STAND PIPE AS PVC RISER IS UNREACHABLE.
*MS/MSD WAS COLLECTED HERE.

Sample ID B-3
 Location mw-8-3
 Samplers RKS/DWS
 Client NYSDEC

Date 10/13/93
 Project CHEMICAL LEAKAGE TANK LINES
 Project # 35102.400
 Sample/Type: Soil; Sediment; Surface Water;
☒ GW Waste: Other _____

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Well Size/Type 1.5" ID.
 Total Well Depth 24.37'
 Depth to Water 14.12'
 Height of Water Column 10.25'

Gals of Standing Water 1.64
 Gals to Purge (x5) 8.20
 Gals Actually Purged 10.0
 Gals/ft. (2" ID=0.16) 4"=0.65 6"ID=1.47

II. WELL PURGING: Start 12:15 p.m. Stop 12:30 p.m. Discharge Rate (GPM) _____
 Equipment: ☒ Pump CENTRIFUGAL Bailer _____
 Well behavior during purging: GOOD RECHARGE, SULFUR ODOR.

III. SAMPLE COLLECTION: Time _____ ID# B-3
 Method: ☒ Bailer DEDICATED PVC Other _____
 Containers (4) 40ml. VOAS; (2) 1pt. CYANIDE; (2) 1pt. METALS; (2) 1/2 gal RNA/PESTICIDES
 Sample Appearance and Odor CLEAR WITH SULFUR ODOR.

IV. FIELD MEASUREMENTS:

Temp	<u>10.7°C</u>	_____	_____	_____
pH	<u>7.04</u>	_____	_____	_____
Conductivity	<u>2.39 uS/cm</u>	_____	_____	_____
Turbidity	<u>15.33</u>	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather SUNNY, @ 50°, LIGHT W. WIND
 Comments FIELD DUPLICATE WAS COLLECTED HERE.

Sample ID B-4
 Location MW-B-4
 Samplers RKS/DWS
 Client NYSDEC

Date 10/13/93
 Project CHEMICAL LEAK/TANK LINES
 Project # 35102.400
 Sample/Type: Soil; Sediment; Surface Water;
☒ GW Waste: Other _____

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Well Size/Type 1.5" ID
 Total Well Depth 17.14'
 Depth to Water 11.06'
 Height of Water Column 6.08

Gals of Standing Water .97
 Gals to Purge (x5) 4.85
 Gals Actually Purged 5
 Gals/ft (2" ID=0.16) 4"=0.65 6"ID=1.47

II. WELL PURGING: Start 1200p.m. Stop 1:40p.m. Discharge Rate (GPM) _____
 Equipment: Pump _____ Bailer DEDICATED PVC
 Well behavior during purging: MW-B-4 WAS BAILED DRY AFTER 3 GALLONS, ALLOWED TO RECHARGE THEN BAILED DRY AFTER A TOTAL OF 5 GALLONS.

III. SAMPLE COLLECTION: Time _____ ID# B-4
 Method: Bailer DEDICATED PVC Other _____
 Containers (2) 40ml VOAS; (1) 1pt. CYANIDE; (1) qt. METALS; (1) 1/2 gal. BHA/PESTICIDES
 Sample Appearance and Odor CLOUDY, NO ODOR.

IV. FIELD MEASUREMENTS:

Temp	<u>11.3°C</u>	_____	_____	_____
pH	<u>7.22</u>	_____	_____	_____
Conductivity	<u>1511µS/cm</u>	_____	_____	_____
Turbidity	<u>7200</u>	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather MOSTLY SUNNY, 85°, LIGHT W. WIND
 Comments _____

Sample ID B-6
 Location MW-B-6
 Samplers RKS/DWS
 Client NYSDEC

Date 10/13/93
 Project CHEMICAL LEAKAGE TANK LINES
 Project # 35102.400
 Sample/Type: Soil; Sediment; Surface Water;
☒ GW Waste: Other _____

I. WATER LEVEL MEASUREMENTS (from top of casing) IN FEET:

Well Size/Type 1.5" I.D.
 Total Well Depth 17.38'
 Depth to Water 13.62'
 Height of Water Column 3.76

Gals of Standing Water .60
 Gals to Purge (x5) 3
 Gals Actually Purged 3.5
 Gals/ft (2"ID=0.16) 4"=0.65 6"ID=1.47

II. WELL PURGING: Start 10:40 am Stop 2:30 pm Discharge Rate (GPM) _____
 Equipment ☒ Pump CENTRIFUGAL Bailer _____
 Well behavior during purging: MW-B-6 WAS PUMPED DRY AFTER 1/2 GALLON, 2 GALLONS, AND 3.5 GALLONS. RECHARGE WAS SLOW.

III. SAMPLE COLLECTION: Time _____ ID# B-6
 Method: ☒ Bailer DEDICATED PVC Other _____
 Containers (2) 40 ml. VOAS; (1) 1pt. CYANIDE; (1) 1qt. METALS; (1) 1/2 gal. RNA/PESTICIDES
 Sample Appearance and Odor CLOUDY WITH NO ODOR

IV. FIELD MEASUREMENTS:

Temp	<u>11.1°C</u>	_____	_____	_____
pH	<u>6.95</u>	_____	_____	_____
Conductivity	<u>1572 µS/cm</u>	_____	_____	_____
Turbidity	<u>75.0</u>	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Weather SUNNY, 64°F, 5-10 mph W. wind
 Comments _____

