New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
Bureau of Hazardous Site Control

314040

ADDITIONS/CHANGES TO REGISTRY: SUMMARY OF APPROVALS

SITE NAME: VAN DE WATER PROPERTY DEC I.D. NUMBER 314040

Current Classification 2a

Activity: ☐ Add as Class ___ ☐ Reclassify to ___ ☑ Delist Category D1 ☐ Modify ___

Approvals:

Regional Hazardous Waste Engineer	Yes	☑	No	☐	
NYSDOH BEEI	Yes	☑	No	☐	
DEE	Yes	☑	No	☐	
_____ Remediation Action Bureau Director	Yes	n/a	No	☐	
BHSC: a. Investigation Section	Yes	☑	No	☐	
b. O&M Section [Class 4]	Yes	n/a	No	☐	
c. Site Control Section					Date 11/7/96
d. Director					Date 11/8/96

Completion Checklist

		Completed By: Initials	Date
OWNER NOTIFICATION LETTER?	☑		1/23/97
ADJACENT PROPERTY OWNER NOTIFICATION LETTER?	☑		2/10/97
ENB/LEGAL NOTICE SENT? (For Deletion Only)	☐		
COMMENTS SUMMARIZED/PLACE IN REPOSITORY	☐		
FINAL NOTIFICATION SENT TO OWNER? (For Deletion Only)			

(For proposed Class 2a sites only) Planned investigative activities & dates: _____

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

SITE INVESTIGATION INFORMATION

1. SITE NAME	2. SITE NUMBER	3. TOWN/CITY/VILLAGE	4. COUNTY
VAN DE WATER PROPERTY	314040	TOWN OF POUGHKEEPSIE	DUTCHESS

5. REGION	6. CLASSIFICATION		
3	CURRENT 2a	PROPOSED D1	MODIFY

7. LOCATION OF SITE (Attach U.S.G.S. Topographic Map showing site location)

a. Quadrangle PLEASANT VALLEY

b. Site Latitude _41_° _42_' _00_" Site Longitude _73_° _53_' _20_"

c. Tax Map Numbers 14-6261-01-085910, 14-6262-03-158026/184085

d. Site Street Address DUTCHESS TURNPIKE (ROUTE 55), POUGHKEEPSIE, NY 12603

8. BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

This property was originally a clay pit that supplied brick yards at the turn of the century. From 1948 to 1971, the site was jointly used as a municipal landfill for the Town and City of Poughkeepsie. The northern portion of the site was used for disposal of yard wastes and spring clean-up debris until 1981. Much of the site has been highly developed at this time. Large retailers including K-Mart and Caldor anchor large plazas with large paved parking lots, while numerous smaller retailers and businesses occupy other portions of this site. Refer to the PSA finalized in February 1996, for complete details on the comprehensive study of this large site.

a. Area __90__ acres b. EPA ID Number __NYD 980535447__

c. Completed (X)Phase I ( )Phase II (X) PSA ( )RI/FS (X)PA/SI ( )Other

9. HAZARDOUS WASTE DISPOSED (Include EPA Hazardous Waste Numbers)

Right To Know information from a dry cleaner indicates that less than 50 pounds per year of solid residues from distillation of perchloroethylene solvent (F002) were disposed for 8 years in Town garbage collections which were taken to this landfill.

10. ANALYTICAL DATA AVAILABLE

a. ( )Air (X)Groundwater (X)Surface Water (X)Sediment (X)Soil ( )Waste ( )Leachate (X)EPTox ( )TCLP

b. Contravention of Standards or Guidance Values

While numerous typical municipal landfill parameters including manganese, iron, and sodium exceedances exist (as would be expected at a former municipal landfill), as well as BTX, the following chlorinated VOCs (as possible PCE breakdown products from the RTK documentation) were detected in the recent PSA study.

GROUNDWATER (GA STD is 5 ppb)
2.9 ppb PCE (Geoprobe GW-3)
41 ppb TCE (MW-1)
14 ppb DCE (Geoprobe GW-5)
110 ppb DCA (Geoprobe GW-3)

SOIL
12"j" ppb PCE (SCG 1,400 ppb) (soil from MW-1)
18 ppb TCE (SCG 700 ppb) (soil from MW-1)
73 ppb Vinyl Chloride (SCG 200 ppb) (Geoprobe BS-3)

11. CONCLUSION

RTK RECORDS LINK "LESS THAN 50 LB/YEAR" OF PERCHLORETHYLENE DISTILLATION RESIDUES DISPOSAL TO THIS 90 ACRE LANDFILL OVER AN 8 YEAR PERIOD. PSA ANALYTICAL RESULTS DID NOT DETECT PERCHLORETHYLENE ABOVE ANY STANDARDS. THE 110 PPB DETECTION OF DICHLOROETHANE, A POSSIBLE BREAKDOWN PRODUCT OF PERCHLOROETHYLENE, IN ONE GEOPROBE GROUNDWATER SAMPLE, WAS NOT FOUND IN THE SOIL OF THIS BORING, NOR AT THE NEARBY CONVENTIONALLY INSTALLED MONITORING WELL MW-4. TRICHLOROETHENE WAS DETECTED AT 41 PPB IN CONVENTIONAL WELL MW-1 AND IN A SOIL SAMPLE FROM MW-1 AT 18 PPB, HOWEVER ALL SOIL CONCENTRATIONS ARE WELL BELOW SOIL CLEANUP GUIDANCE VALUES. CONSIDERING THE FACT THAT PERCHLORETHYLENE WAS NOT DETECTED ABOVE ANY STANDARDS, IT IS NOT CONVINCING THAT A CONSEQUENTIAL PERCHLORETHYLENE SOURCE IS PRESENT AT THIS SITE. LOW LEVEL CONTAMINATION WOULD BE EXPECTED AT A FORMER MUNICIPAL LANDFILL WHICH WOULD NOT BE INDICATIVE OF CONSEQUENTIAL HAZARDOUS WASTE DISPOSAL. SOLID WASTES REMAIN THE CONCERN AT THIS HIGHLY DEVELOPED SITE. RECOMMENDED ACTION IS REGISTRY DELISTING.

12. SITE DATA

a. Nearest Surface Water: Distance __ONSITE__ft. Direction __ONSITE__ Classification _____"D"_____

b. Nearest Groundwater: Depth ___3.5___ft. Flow Direction __EAST-SOUTHEAST__ ( )Sole Source ( )Primary ( ) Principal

c. Nearest Water Supply: Distance ___100___ft. Direction ____WEST____ Active (X)Yes ( )No

d. Nearest Building: Distance __ONSITE_ Direction _____ONSITE_____ Use _____COMMERCIAL USE_____

e. In State Economic Development Zone?	( )Y	(X)N	i. Controlled Site Access?	( )Y	(X)N
f. Crops or livestock on site?	( )Y	(X)N	j. Exposed hazardous waste?	( )Y	(X)N
g. Documented fish or wildlife mortality?	( )Y	(X)N	k. HRS Score __PA=45__		
h. Impact on special status fish or wildlife resource?	( )Y	(X)N	l. For Class 2: Priority Category ___N/A___		

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
MULTIPLE SITE OWNERS	SEE ATTACHMENTS IN PACKAGE	SEE ATTACHMENTS

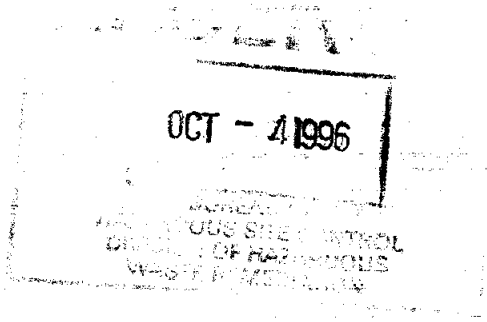
16. PREPARER	17. APPROVED
Carl Hoffman MAY 13, 1996	11/8/96
Signature Date	Signature Date
CARL HOFFMAN, ENVIRONMENTAL ENGINEER 2, NYSDEC/DHWR/BHSC/WIS	Carl H. Bracomb, Director, BHSC
Name, Title, Organization	Name, Title, Organization

TS
WB
R. Marino
DEE

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Office of Public Health II University Place Albany, New York 12203-3399

Barbara A. DeBuono, M.D., M.P.H.
Commissioner



September 18, 1996

Mr. Earl Barcomb, P.E., Director
Bureau of Hazardous Site Control
Division of Environmental Remediation
NYS Dept. of Environmental Conservation
50 Wolf Road
Albany, New York 12233

RE: Classification Package
Van De Water Property
Site ID #314040
Poughkeepsie/Dutchess County

Dear Mr. Barcomb:

My staff have evaluated the attached Registry Site Investigation Form for the above referenced site. Based on available information, I concur with the proposal to remove the site from the Registry of Inactive Hazardous Waste Disposal Sites, and have indicated our approval on the enclosed form. We recommend that the site be referred to your Division of Solid Waste for continued oversight and appropriate follow-up under the provisions of their program.

We will continue our efforts to determine the status of the nearby residential well on Alice Court. If we find that it is still in service, we will make arrangements to resample the supply. These additional data will indicate if drinking water quality parameters have changed since the well was last tested in June 1990. My staff will provide these data to you for your records.

If you should have any questions, please contact Mr. Steve Bates at (518) 458-6305.

Sincerely,

G. Anders Carlson, Ph.D.
Director
Bureau of Environmental Exposure
Investigation

jmo/62550160

Enclosure

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION 070798
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

CLASSIFICATION CODE: D1 REGION: 3 SITE CODE: 314040
EPA ID: NYD980535447

NAME OF SITE : VanDeWater Property
STREET ADDRESS: Between Van Wagner Road and Route 44
TOWN/CITY: COUNTY: ZIP:
Poughkeepsie Dutchess

SITE TYPE: Open Dump- Structure- Lagoon- Landfill-X Treatment Pond-
ESTIMATED SIZE: 90 Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: ** Multi - Owner Site **
CURRENT OWNER ADDRESS.: * * * * *
OWNER(S) DURING USE...:
OPERATOR DURING USE...: Town of Poughkeepsie
OPERATOR ADDRESS.....: Route 44, Poughkeepsie, NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1930 To 1969

SITE DESCRIPTION:
This site was a municipal landfill with limited vegetative cover, which later was covered and developed into a large shopping area; the 44-Plaza Shopping Center. During construction of Caldors in 1973, municipal waste was excavated and disposed of 100 feet north of the foundation. At present, this site is covered with vegetation. Casper Kill Creek flows south along the site. Much of the site is flat, except for the creek, which is located in a gully. The site forms a five to ten foot embankment near the access road at the side of Caldors. Leachate runoff was observed at the bottom of this embankment. Air monitoring identified 600 ppm of methane on the top of this embankment. The Town maintained approximately 10 acres of the site for storage and disposal of leaves and construction debris, but the area is no longer used for that purpose.
An EPA Site Investigation has been completed. A Phase I Investigation was completed in 1984 and a Preliminary Site Assessment (PSA) is complete.
The Town of Poughkeepsie performed a sub-surface investigation on a 14.5 acre portion of the VanDeWater site known as the "Espie" property. The property is located on the west side of Tucker Road, approximately 1200 feet north of the intersection of Tucker Road and Friendly Lane. The investigation included the excavation of 23 test pits and 10 split spoon samples. The results of this investigation did not document the disposal of hazardous waste on the 14.5 acre "Espie" property. A Petition from the Town of Poughkeepsie requesting the deletion of the 14.5 acre "Espie" property from the site description of the VanDeWater site was granted on March 1, 1995.
The PSA concluded that low level contamination discovered could be expected at a former municipal landfill but would not be indicative of a consequential amount of hazardous waste disposal.

HAZARDOUS WASTE DISPOSED:

TYPE	QUANTITY (units)

SITE CODE: 314040

ANALYTICAL DATA AVAILABLE:
Air- Surface Water- Groundwater-X Soil-X Sediment-

CONTRAVENTION OF STANDARDS:
Groundwater-X Drinking Water-X Surface Water- Air-

LEGAL ACTION:

TYPE..: State- Federal-
STATUS: Negotiation in Progress- Order Signed-

REMEDIAL ACTION:

Proposed- Under design- In Progress- Completed-
NATURE OF ACTION:

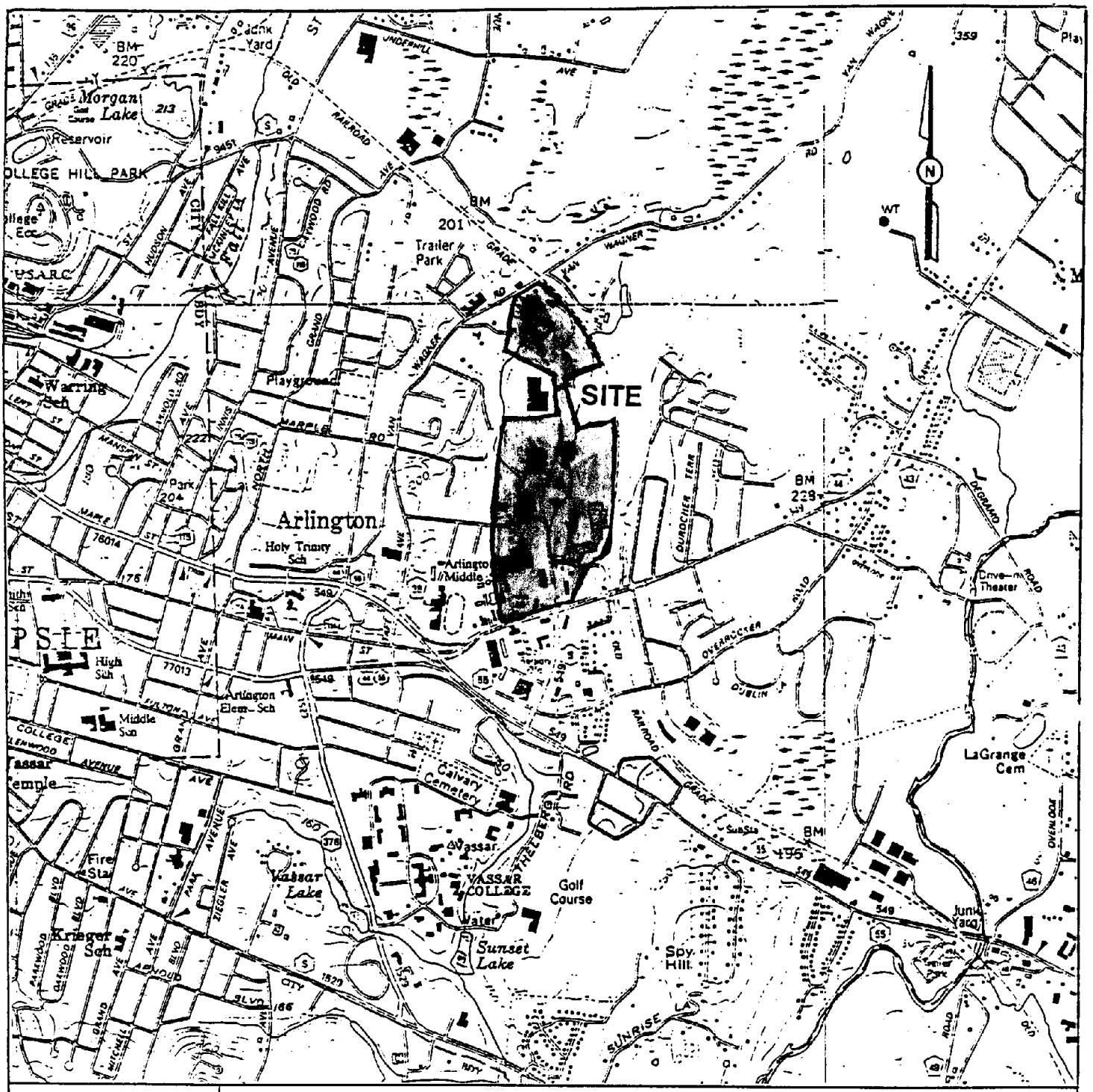
GEOTECHNICAL INFORMATION:
SOIL TYPE: Sand and gravel
GROUNDWATER DEPTH: 3.5 feet

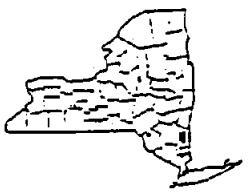
ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

There are no environmental problems associated wuth the disposal of hazardous waste at this site.

ASSESSMENT OF HEALTH PROBLEMS:

Leachate has been observed in drainage ditches on-site and must be sampled and analyzed to determine if site related contaminants are being transported off-site via surface water. If surface water is contaminated with site related contaminants, persons fishing in Casper Creek may be exposed. The site is accessible. The southern portion of the property is paved and is commercially developed. The northern portion of the site is vacant and persons that get on-site may come in contact with visible fill material and may possibly be exposed to site contaminants present in the soils. A well at a radio station on-site is reportedly contaminated and unusable for drinking. No exposures are expected from contaminated water because the station is supplied with municipal water. Most of the residences nearby are serviced by off-site municipal water, but it is possible that private wells exist and are being used. Further investigation is necessary.





QUADRANGLE LOCATIONS

SOURCE: N.Y.S. DEPARTMENT OF TRANSPORTATION, POUGHKEEPSIE AND PLEASANT VALLEY QUADRANGLES DATED 1969, 7.5 MINUTE SERIES

SITE NO: 314040 SITE COORDINATES 41° 42' 00" N, 73° 53' 45" W

LOCATION: TOWN OF POUGHKEEPSIE, DUTCHESS COUNTY, N.Y.

SCALE IN FEET

0 2000 4000

FIGURE 1-1
VAN DE WATER PROPERTY
PRELIMINARY SITE ASSESSMENT
NEW YORK STATE DE

1.0 EXECUTIVE SUMMARY

1.1 Site Description and Disposal History

The Van De Water Property, New York State Department of Environmental Conservation (NYSDEC) site 314040, is located between U.S. Route 44 on the south and Van Wagner Road on the north in the Town of Poughkeepsie, Dutchess County, New York (Figure 1-1). The site consists of two shopping plazas, Dutchess Center Plaza, and 44 Plaza, currently occupied by a variety of businesses (department stores, restaurants, etc.) and several free-standing businesses and warehouses (Figure 1-2). The site area is approximately 90 acres, of which approximately 50 percent is paved. It is currently classified as Class 2a, a site that has inadequate/insufficient data for inclusion in any other classification.

The Van De Water Property occupies a 4,800-foot long portion of the Casper Creek stream valley (Figure 1-1). The land slopes gently toward the stream from the east and the west. The stream banks are generally 2-feet high in the northern portion (upstream) increasing to 7-feet high in the southern (downstream) portion of the site. Bedrock, consisting of black, laminated Ordovician-age shales, is exposed along the western margin of the site forming the edge of the stream valley. The site is bounded on the east by a former railroad grade constructed on bedrock and fill 20 to 30 feet above the valley floor. The valley floor is composed of glacially-deposited clays with occasional bedrock outcrops which have been removed to grade level as a result of site development.

The site was operated as a clay pit for brick yards that were operated nearby during the nineteenth and into the twentieth centuries. Subsequently, the site was used as a landfill jointly by the Town and City of Poughkeepsie from the 1940's to 1971. During the period when the site was active as a dump, the southern portion of the property was operated as a municipal landfill until approximately 1971, while the northern portion was used into the mid-1980's for disposal of landscaping and yard wastes, as well as spring cleanup debris (Figure 1-3)(URS, 1992). There were two off-site petroleum spills which affected surface water at the site; one that occurred in 1986, and another in 1993. Casper Creek, a Class D stream, emanates from NYSDEC designated Class II wetland PK-5 approximately 0.75 miles north of the site and flows through the site from north to south (Figure 1-2). Casper Creek flows into NYSDEC designated Class II wetland (PK-18) 1.2 miles south of the site, eventually discharging into the Hudson River, approximately 7 miles southeast of the site.

There is documentation of hazardous waste deposition at the Van De Water Property site. A Right-to-Know Hazardous Waste Disposal Questionnaire completed in 1984, and contained in NYSDEC files, indicates that 50 pounds per year of tetrachloroethene (PCE) residue (F002) was disposed of at the site between 1963 and 1971.

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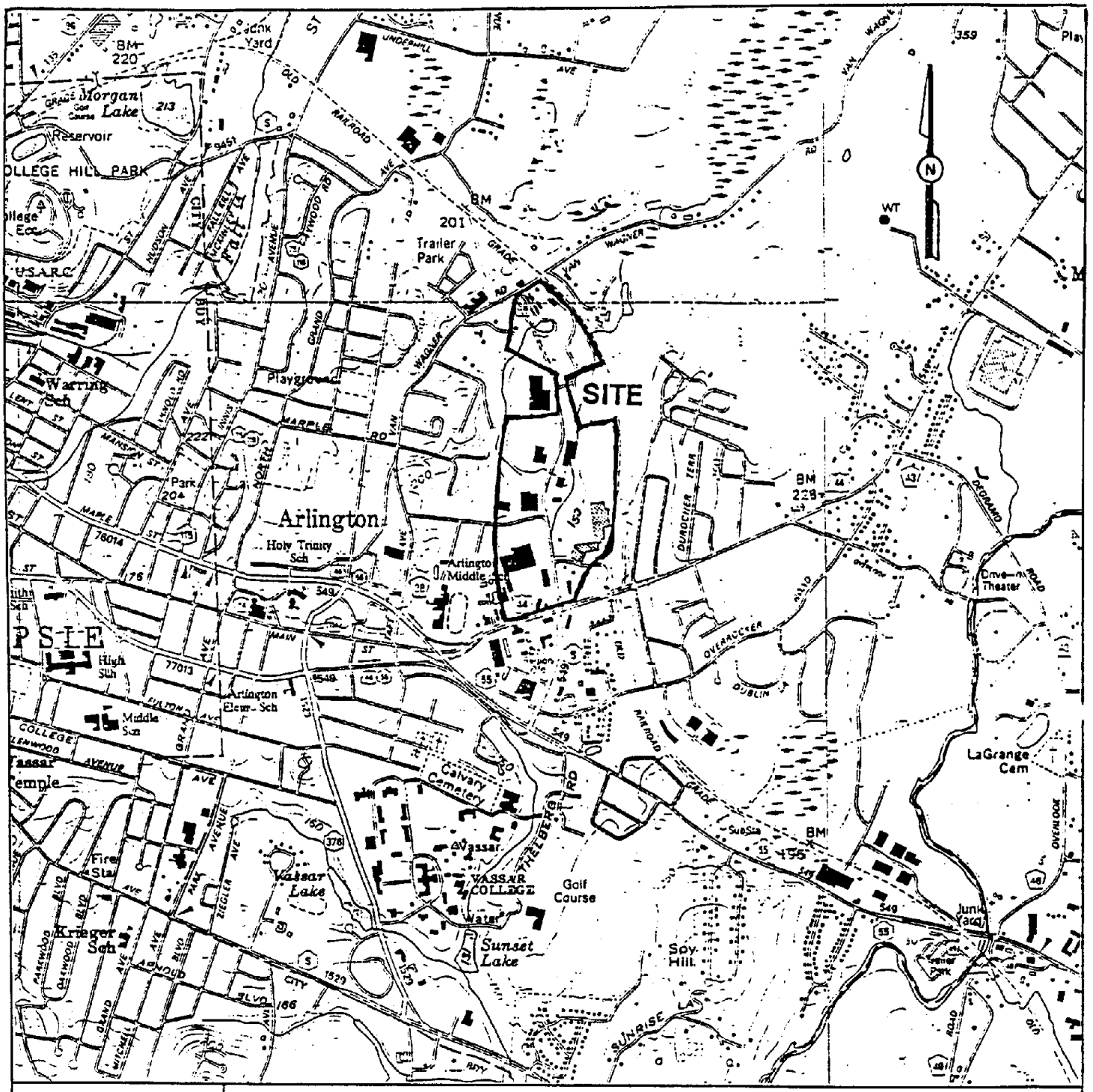

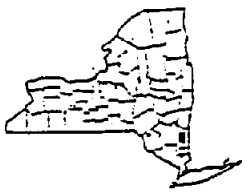

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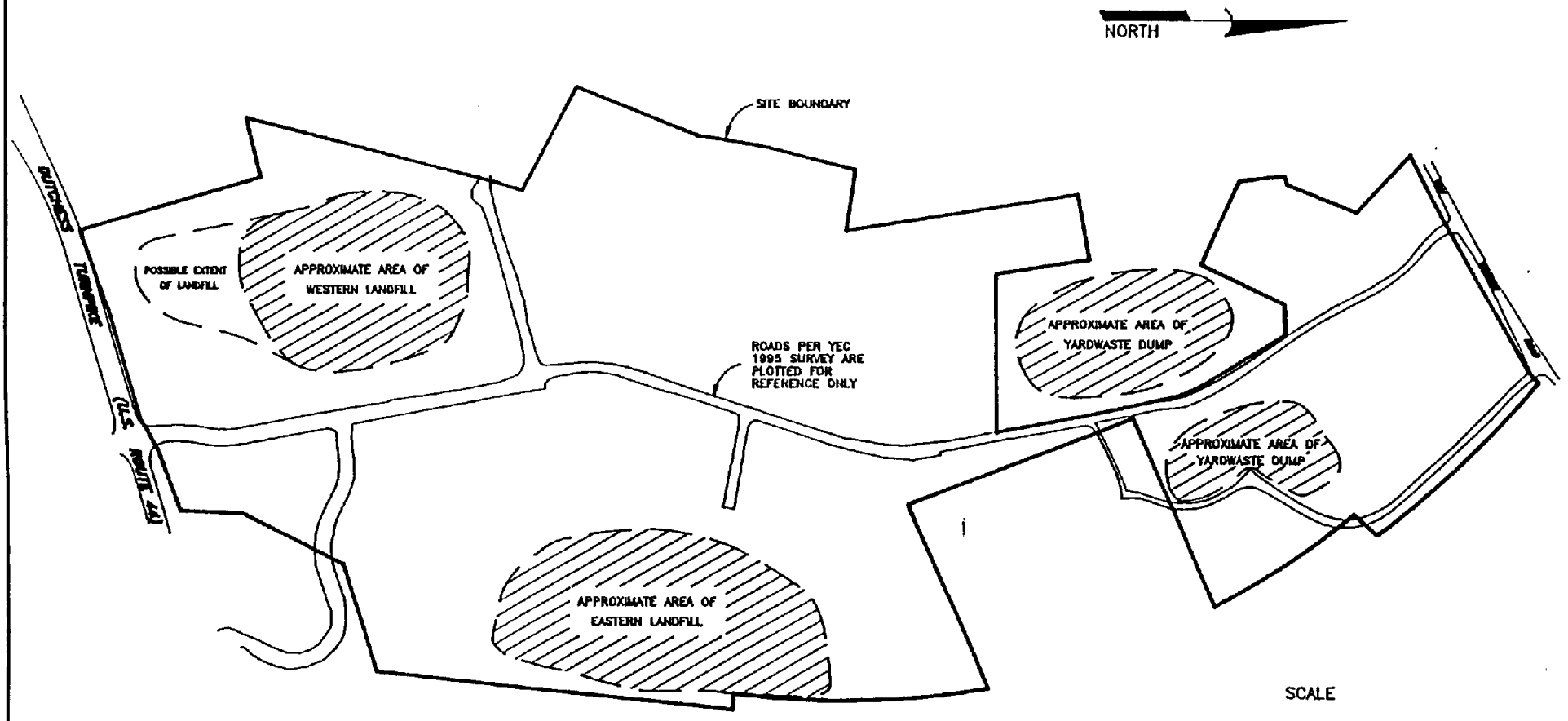


SOURCES: TOPOGRAPHIC MAP FOR 44 PLAZA (1971)
OCHD REPORTS (1970-1972)
PSA SOIL BORING PROGRAM (1995)
MORRIS & ASSOC. (1996)

FIGURE 1-3

HISTORICAL LANDFILL AREAS
(1940s - 1970s)

VAN DE WATER PROPERTY
NYSDEC SITE NO. 314040

1.2 Site Investigation

In October 1990, URS Consultants, Inc. (URS) performed a PSA Task 1 file search for the Van De Water Property. The purpose of the PSA was to provide the information necessary for the NYSDEC to reclassify the site. Prior to initiating Task 1, the NYSDEC had classified the site as a Class 2a, which is a temporary classification assigned to sites that have inadequate and/or insufficient data for inclusion in any of the other classifications.

Task 2 of the PSA was the development of the Task 3 and Task 4 field investigation work plan and budget required to document or dismiss the presence of hazardous waste at the site. A Site Work Plan was approved by NYSDEC during May 1993. However, during July and August 1994, the Scope of Work was altered from the installation of eight monitoring wells and a surface water, sediment, and soil sampling program of the 90 acre site, to a more limited screening program of the overall site, in order to identify specific areas of concern.

In August and September 1994, the Task 3 PSA field investigation was initiated by YEC, Inc. (YEC) and NYSDEC. The field program included: (1) the collection of surface water and sediment samples from water bodies flowing through the site with analysis at an off-site laboratory for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and Target Analyte List (TAL) inorganics and cyanide; and (2) a photoionization detector (PID) soil gas survey of the entire site for generic VOCs.

During December 1994 and January 1995, the results of the Task 3 field investigation were assessed and seven areas of the site were identified as possibly containing VOC contamination. YEC recommended a Task 4 subsurface field investigation to verify the presence or absence of VOC contamination in the seven areas. Following NYSDEC approval in March 1995 the Task 4 field investigation was initiated in seven areas of the site using van-mounted direct push technology to collect soil vapor samples, groundwater samples, and soil samples. The soil vapor and groundwater samples were analyzed for a limited suite of VOCs in an on-site mobile laboratory. The soil samples were sent to an off-site laboratory for TCL and TAL analysis. During April and May 1994 the analytical results from the Task 4 field investigation were assessed and a recommendation for further Task 4 work was sent to the NYSDEC. Following NYSDEC approval of the recommendation, further subsurface investigation was conducted during June 1994 including: (1) advancement of four soil borings with completions as monitoring wells in one area of the site; and (2) the collection of four subsurface soil, five groundwater, and one surface water samples for laboratory analysis for full TCL and TAL parameters.

1.3 Presence of Hazardous Waste

To document the presence or deposition of hazardous waste, one of the three

following criteria must be met according to 6 NYCRR Part 371:

- Demonstrate the presence of listed hazardous waste under RCRA by documentation, analytical data or combination of both (6 NYCRR 371.4 (a)(3));

- Demonstrate Characteristic Hazardous Waste by running tests for characteristics including EP Toxicity, Ignitability, Corrosivity, and Reactivity (6 NYCRR 371.3 (b)(c)(d)(e)); or

- Demonstrate the presence of polychlorinated biphenols (PCBs) defined as hazardous waste if the concentration level exceeds 50 ppm, or if it can be shown that the source contained PCBs at, or above, 50 ppm (6 NYCRR 371.4(e)(1)).

These criteria are evaluated for the Van De Water Property site in the following paragraphs.

Previous investigations, including a Preliminary Assessment by NUS Corporation (1983) and a Phase I report by Wehran Engineering Corporation (1984) failed to document disposal of hazardous waste at the site. However, a 1984 Right-To-Know form did document that about 50 pounds of PCE solvent residues was disposed of annually at the site for about 8 years (1963 - 1971) by a local dry cleaning establishment (NYSDEC, 1984). No other evidence of hazardous waste deposition was documented during this PSA at the Van De Water Property. Chemical analysis of samples collected during the PSA supported the documentary evidence through the presence of the PCE breakdown products trichoroethene (TCE), trichloroethane (TCA), cis- and trans-dichloroethene (DCE), dichloroethane (DCA), and vinyl chloride (VC). Table 1-1 summarizes the maximum concentrations of PCE and its breakdown products detected in samples collected at the site.

Table 1-1
MAXIMUM PCE AND BREAKDOWN PRODUCT CONCENTRATIONS
VAN DE WATER PROPERTY

Parameters	Soil Vapor	Groundwater		Soil	
Units	PPB	µg/L	WQR[1] (µg/L)	µg/Kg	SCG[2] (µg/Kg)
Tetrachloroethene	13	2.9	5	12J	1,400
Trichloroethene		41	5	18	700
Dichloroethene	3.8	14	5		
Vinyl Chloride			5	73	200
Trichloroethane			5	13J	800
Dichloroethane		110	5		

1 Water Quality Regulations Surface Water and Groundwater: Class GA Drinking Water NYS Codes, Rules and Regulations Title 6, Chapter X, Parts 700-705, 1992.
2 Soil Cleanup Guidance Values.
J Estimated value.

Cyanide (of unknown origin) was detected in two samples at levels exceeding NYS guidance values. No soil or water samples were found to exceed criteria for EP Toxicity Characteristics, nor were PCBs been detected in any samples in excess of 50 ppm.

1.4 Significant Threat

Significant threat to the public health or the environment must be proven in order for the NYSDEC to reclassify a site. Significant threat must be a direct result of hazardous waste disposal and can be in the form of contravention of federal or state standards, impact on fish, wildlife, or flora, or through a potential for direct human contact.

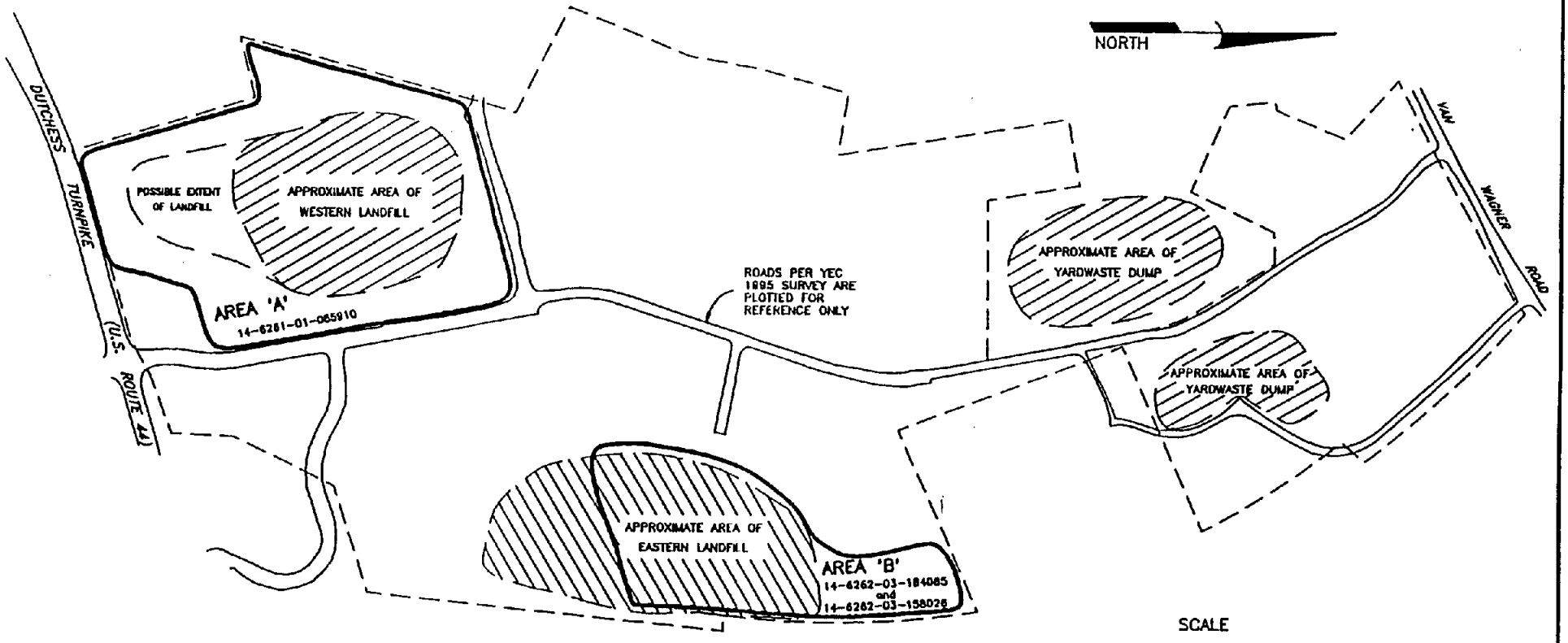
The PSA field investigations were designed to assess whether or not the site poses a significant threat to public health or the environment, as well as if contaminants have the potential to migrate from the site. Data developed during the PSA sampling and analysis activities indicate the presence of PCE, and its breakdown products, TCE, TCA, DCE, and VC, various SVOCs, and cyanide in both groundwater and soils.

Clay soils on the site appear to act as an effective barrier preventing the off-site migration of contaminants into surface waters. No downgradient population appears to be at risk because there are no known residential water wells downgradient of the site. Therefore, there appears to be no significant threat of off-site migration of contamination.

1.5 Recommendations

The VOCs PCE, TCE, TCA, DCE, and VC, various SVOCs, and cyanide have been detected in low concentrations in groundwater and soils at the site, particularly in Dutchess Center Plaza. Applicable standards and guidance values were exceeded in some instances, however, there appears to be little chance of off-site migration of contaminants. Municipal waste appears to be contained in two areas of the site, Dutchess Center Plaza (buried), and north of 44 Plaza (excavated and placed in a mound). The area comprising Dutchess Center Plaza (Figure 1-4, Area 'A'), and the area of mounded waste (Figure 1-4, Area 'B'), total approximately 25 acres.

It is recommended that the property owner of Area 'B' (area of mounded waste) undertake a study to characterize the waste and evaluate the options of disposal and/or containment. If removal of the waste to a regulated solid waste landfill for final disposal as per 6 NYCRR Part 360 is not feasible, or possible in the near term, an interim remedial measure (IRM) (e.g., impermeable cap and security fencing) would prevent migration of leachate into adjoining surface waters, avoid direct contact with waste, and minimize vector and other intrusive activity. If the mounded waste is not removed from the site, deed restrictions on future use of Area 'B' should be considered.



LEGEND

- PRESENT SITE BOUNDARY
- PROPOSED SITE BOUNDARY
- 14-6261-01-161846 PROPERTY TAX MAP PARCEL NUMBER

PROPERTY OWNERS IN AREAS OF CONCERN:

AREA A:
14-6261-01-085910
MIRON CORPORATION
ATTN: STEPHEN MIRON
CPO BOX 1598
KINGSTON, NY 12401

AREA B:
14-6262-03-184085 AND 14-6262-03-158026
THOMAS R. ESPIE JR., AND BETTY ESPIE
RD 1, 831 VAN WAGNER ROAD
POUGHKEEPSIE, NY 12601

SOURCES: TOPOGRAPHIC MAP FOR 44 PLAZA (1971)
DCHD REPORTS (1970-1972)
PSA SOIL BORING PROGRAM (1995)
MORRIS & ASSOC. (1995)

FIGURE 1-4

AREAS OF CONTINUING CONCERN

VAN DE WATER PROPERTY
NYSDEC SITE NO. 314040

In addition, if there is further building construction, particularly in the Dutchess Center Plaza (Area 'A'), soil borings and excavations should be sampled and tested for hazardous waste contamination, and direct contact with subsurface materials and water should be avoided. An additional concern, especially during any intrusive activity at this site, is methane, a typical landfill gas previously documented at this site, which can be dangerous to site workers and equipment. Methane was not evaluated at this site because is not classified as a hazardous waste. It is a significant problem associated with solid waste disposal, as are structural problems, leachate migration, and groundwater, surface water and air contamination. All these issues must be addressed as part of the development of any solid waste site.

A Site Data Sheet follows this section (Figure 1-5) and the Site Investigation Summary Forms are presented in Appendix A.

2.0 Site History and Background - Van De Water Site

The Van De Water Property site comprises an area of approximately 90 acres between U.S. Route 44 on the south and Van Wagner Road on the north in the Town of Poughkeepsie, Dutchess County, New York (Figure 1-1). The site was used as a clay pit for brick yards that were operated nearby during the nineteenth and into the twentieth centuries. After the brick yards closed, the southern portion of the site was used as a landfill, jointly, by the Town and City of Poughkeepsie from approximately 1948 to 1971. Also, during the late 1940s, the northern portion of the site contained an airplane landing strip. During the 1950s there was an automobile race track on the site. In addition, there may also have been a septic disposal operation located nearby the site on Van Wagner Road. During the 1960s, a radio station and antennae were erected on part of the northern portion of the site. Much of the remainder of the northern portion was used for disposal of yard wastes and spring cleanup debris, a practice which continued into the mid-1980's (Figure 1-3)(URS, 1992). During the period of landfilling (dumping) the site was owned by John and Robert Van De Water.

Upon cessation of dumping activities, much of the site was regraded and developed for commercial use. Two shopping centers were constructed, Dutchess Center Plaza and 44 Plaza, along with a number of other individual commercial business buildings and warehouses. During the construction of the Caldor Department Store in 1971 in 44 Plaza, previously landfilled material placed east of Burnett Boulevard was excavated and moved to a location south of Caldor (Figure 1-2). During this activity several questionable actions took place including placement of insufficient cover on the relocated waste, and the rerouting of a classified stream through refuse, resulting in complaints by area residents of a severe odor problem. During the construction of the Dutchess Center Plaza in the southwestern portion of the site, refuse was not excavated, although it was exposed during site preparation causing severe odor problems (Ruhle, 1994). After the construction of the two plazas, other commercial and light industrial buildings were constructed on the northern portion of the site, north of Friendly Lane, mostly on lands owned by Thomas and Betty Espie (Figure 1-2).

Available documents indicate that the landfill portion sometimes was operated in violation of state and local health codes. In addition, Right-to-Know documents revealed that a local dry cleaner disposed of approximately 50 pounds of PCE waste annually, beginning in 1963 (NYSDEC, 1984). No other documentation of hazardous waste disposal was identified for the site. There are two Class 2 Inactive Hazardous Waste Sites within 0.25 miles of the Van De Water Property, and it is possible that hazardous wastes similar to those deposited at those sites may also have been deposited at this site. Leachate seeps have been observed in areas of known waste disposal (Wehran, 1984).

Two spills were documented just upgradient of the site at the New York Telephone Garage on Van Wagner Road which may have affected site surface and groundwater

quality: (1) a waste oil spill into a roadside ditch on October 30, 1986 of unknown quantity; and (2) a tank rupture at the New York Telephone facility on August 4, 1993 when a substantial quantity of diesel fuel was released into a roadside ditch and entered a small stream, flowing onto the site in the northwestern corner (NYSDEC Spills File, Espie, 1995). Both were cleaned up by licensed environmental consultants.

In 1983 NUS Corporation conducted a USEPA Site Assessment on the mounded, excavated refuse north of the Caldor Department Store, and identified leachate outbreaks and recorded higher than expected methane concentrations in ambient air (NUS, 1983). In 1984, Wehran Engineering Corporation performed a NYSDEC Phase I investigation over the entire site.

During 1994, Morris and Associates, P.C. (Morris) under contract to the Town of Poughkeepsie, conducted a site assessment of property owned by Thomas and Betty Espie, and occupied by Roe Movers. The Town petitioned NYSDEC for partitioning of that specific property from the overall site so the Town could purchase it for use as Town offices (Figure 1-2). The exclusion was granted by NYSDEC during the Fall of 1994. During the site assessment by Morris test pits were dug and soil borings advanced turning up mostly yard wastes and minor quantities of household trash.

Approximately 51,250 persons live within a 3-mile radius of the site with up to 9,000 people using private residential wells for drinking water. One residence, on Alice Court, obtains its potable water from a water well (Figure 3-1). This well was sampled for NYSDEC in 1990 as part of an inactive hazardous waste site investigation of an area upgradient of the Van De Water Property site. The groundwater sample was analyzed for volatile and semivolatile organic compounds, pesticides/PCBs, metals and cyanide. No organic compounds, pesticides or PCBs were detected in the sample. Sodium was the only metal detected above New York State groundwater drinking water standards (M & E 1992).

Casper Creek, a Class D stream flows through the site, and is hydraulically connected to two NYSDEC designated wetlands upstream and downstream of the site. An endangered species of turtle, Blanding's Turtle has been identified within one mile of the site.

Volatile Organic Compounds

No VOCs were detected in the seven surface water samples.

Semivolatile Organic Compounds

SVOCs were detected in four of the seven surface water samples collected. All the concentrations were estimated. No Water Quality Regulation (WQR) standards exist for surface water for ten of the eleven SVOCs detected. The majority of detections were at locations SW-2 and SW-3. Only one SVOC, benzo(a)pyrene in SW-3 (at an estimated concentration of 3 µg/L) exceeded the applicable WQR standards for Class D surface water (Table 3-1).

Metals

All samples collected were analyzed for the TAL metals and cyanide. Metals results are presented in Table 3-2. Exceedances of the WQR standards for a Class D stream include the following:

- Iron in SW-1 through SW-7, and SW-101
- Mercury in SW-1 through SW-7

No WQR standards for a Class D stream exist for seven metals (aluminum, barium, calcium, magnesium, manganese, potassium, sodium) detected in the surface water samples.

3.3.2 Sediment

Sediment sample results were compared against the NYSDEC document entitled "Technical Guidance for Screening Contaminated Sediments," November 1993. This document provides a basis for assessing contamination levels at Superfund and Responsible Party inactive hazardous waste sites. Since the procedures presented in the document are for guidance purposes only, values presented in the table for organic parameters were based on an assumed total organic carbon (TOC) content of 1 percent. Site-specific TOC data were not collected.

The contamination levels for inorganic parameters (metals) are also based on the document "Technical Guidance for Screening Contaminated Sediments", November 1993.

Volatile Organic Compounds

VOCs were detected in six out of seven sediment samples as shown in Table 3-3. Only one sample, SD-1, had detections of all three VOCs, but it was collected from an off

Table 3-1
ANALYTICAL SUMMARY TABLE
PRELIMINARY SITE ASSESSMENT
VAN DE WATER PROPERTY
SURFACE WATER
(TCL Organics)

Sample ID		VDSW-1	VDSW-2	VDSW-3	VDSW-4	VDSW-5	VDSW-6	VDSW-7	SW-101
Date Sampled		8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	6/27/95
Date Received		8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	6/28/95
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Parameters	WQR' (µg/L)								
Phenanthrene	N/A	-	0.9 J	2 J	-	-	-	-	-
Fluoranthene	N/A	-	1 J	6 J	-	-	-	-	-
Pyrene	N/A	-	1 J	5 J	-	-	-	-	-
Bis(2-ethylhexyl) phthalate	N/A	-	3 J	-	-	1 J	2 J	-	-
Benzo(a)anthracene	N/A	-	-	3 J	-	-	-	-	-
Chrysene	N/A	-	-	3 J	-	-	-	-	-
Benzo(b)fluoranthene	N/A	-	-	2 J	-	-	-	-	-
Benzo(k)fluoranthene	N/A	-	-	3 J	-	-	-	-	-
Benzo(a)pyrene	0.0012 GV	-	-	3 J*	-	-	-	-	-
Indeno(1,2,3-cd) pyrene	N/A	-	-	2 J	-	-	-	-	-
Benzo(g,h,i)perylene	N/A	-	-	2 J	-	-	-	-	-

[1] Water Quality Regulations Surface Water and Groundwater for a Class D stream: NYS Codes, Rules and Regulations Title 6, Chapter X, Parts 700-705, 1992.
TCL Target Compound List

* Water Quality Regulation (WQR) exceedance
N/A Not available
GV Guidance Value
Footnotes defined in Appendix D

Table 3-2
ANALYTICAL SUMMARY TABLE
PRELIMINARY SITE ASSESSMENT
VAN DE WATER PROPERTY
SURFACE WATER
(TAL Inorganics)

Sample ID		VDSW-1	VDSW-2	VDSW-3	VDSW-4	VDSW-5	VDSW-6	VDSW-7	SW-101
Date Sampled		8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	6/27/95
Date Received		8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	6/28/95
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Parameters	WQR' (µg/L)								
Aluminum	N/A	U	324	U	629	U	U	U	50.1 B
Arsenic	360	U	2.9 J	U	U	2.4 J	U	2.5 J	-
Barium	N/A	22 J	74 J	67 J	86 J	58 J	233	247	324
Calcium	N/A	47,500	61,300	61,600	62,200	62,900	75,300	73,800	64,800
Chromium	[2]	U	U	U	8.8 J	12.7 J	U	U	-
Copper	[3]	U	U	U	U	U	U	U	3.4 B
Iron	300	796.0*	1,390*	1,200*	3,020*	2,920*	4,870*	1,830*	2,760*
Lead	[4]	1.8 J *	4.5 *	U	1.9 J	U	U	3.6 *	-
Magnesium	N/A	7,260	12,500	11,700	11,100	12,100	15,100	14,300	12,000
Manganese	N/A	1,420	393	387	5,480	2,170	1,900	1,140	571
Mercury	0.2 GV	0.45 J*	0.49 J*	0.42 J*	0.36 J*	2.4 J*	0.38 J*	0.39 J*	-
Nickel	[5]	U	U	12.5 J	U	U	U	U	5.4 B
Potassium	N/A	2,730 J	2,730 J	2,610 J	2,210 J	2,570 J	4,350 J	3,790 J	4,050 B
Sodium	N/A	23,300	86,000	79,900	23,100	26,300	55,900	65,700	49,400
Thallium	20	3.5 J	U	U	U	U	U	4.3 J	9.9 B
Zinc	[6]	27.5	7.1 J	U	5.8 J	U	U	6.4 J	-
Cyanide	22	U	U	U	12.4	U	U	U	10.7

' Water Quality Regulations Surface Water and Groundwater for a Class D stream: NYS Codes, Rules and Regulations Title 6, Chapter X, Parts 700-705, 1992.
TAL Target Analyte List

* Water Quality Regulation (WQR) exceedance
N/A Not available
GV Guidance Value
Footnotes defined in Appendix D

-site, upgradient location. The three VOCs detected (and their maximum concentration) are chloroform (2 µg/Kg), 2-hexanone (6 µg/Kg), and toluene (14 µg/Kg). The levels of chloroform and toluene were well below the Soil Cleanup Guidance (SCG) values, and no soil SCG exists for 2-hexanone. The maximum concentrations for chloroform, 2-hexanone, and toluene were all estimated.

Semivolatile Organic Compounds

SVOCs were detected in six out of seven sediment samples (Table 3-3). A total of 22 SVOCs were detected in one or more sediment samples with 16 detections in SD-3 to 1 detection in SD-5. The six SVOCs (out of the 22) that were detected that exceeded SCG values (and their maximum concentrations) are benzo(a)anthracene (16,000 µg/Kg), chrysene (16,000 µg/Kg), benzo(b)fluoranthene (18,000 µg/Kg), benzo(k)fluoranthene (19,000 µg/Kg), benzo(a)pyrene (18,000 µg/Kg), and dibenz(a,h)anthracene (79 µg/Kg).

Pesticides/PCBs

All samples were analyzed for pesticides/PCBs (Table 3-4). Pesticides were detected in six out of seven sediment samples, with no detections in SD-2. All pesticide detections were below the SCG values. Three of the pesticides detected had no corresponding SCG value. The results for four of the pesticides were rejected in several of the samples.

Three PCBs were detected in the sediment samples. Aroclor-1242 at estimated concentrations of 52 µg/Kg in SD-3 and 250 µg/Kg in SD-6, Aroclor-1254 at estimated concentrations of 59 µg/Kg in SD-1 and 100 µg/Kg in SD-6, and Aroclor-1260 at estimated concentrations of 110 µg/Kg in SD-1, 33 µg/Kg in SD-3, and 72 µg/Kg in SD-6. The total concentration of PCBs for any sample was well below the SCG value for total PCBs.

Metals

All samples collected were analyzed for TAL metals and cyanide. Metals results are presented in Table 3-5. Exceedances of SCG values include the following:

- Arsenic SD-1 through SD-7
- Barium SD-6
- Chromium SD-1 through SD-7
- Cobalt SD-1 through SD-7
- Copper SD-1,SD-2,SD-3,SD-5,SD-6, and SD-7
- Iron SD-1 through SD-7
- Mercury SD-1 through SD-7
- Nickel SD-1 through SD-7
- Selenium SD-7

Table 3-3
ANALYTICAL SUMMARY TABLE
PRELIMINARY SITE ASSESSMENT
VAN DE WATER PROPERTY
SEDIMENT
(TCL Organics)

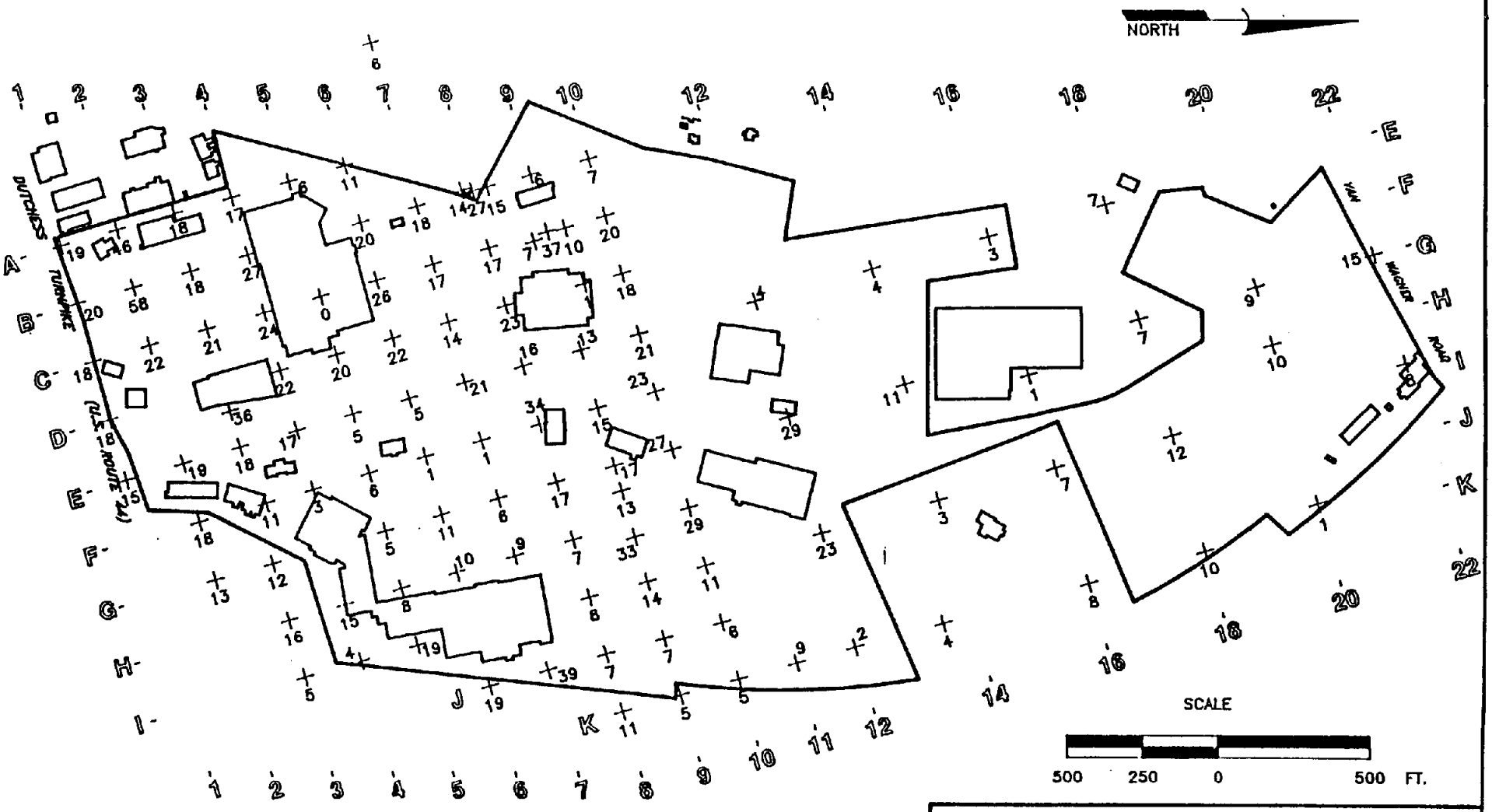
Sample ID		VDSD-1	VDSD-2	VDSD-3	VDSD-4	VDSD-5	VDSD-6	VDSD-7
Date Sampled		8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94
Date Received		8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
Depth (ft)		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Parameters	SCG[1] (µg/Kg)							
Chloroform	NV	1 J	0.8 J	-	0.9 J	-	2 J	0.7 J
2-Hexanone	NV	6 J	-	-	-	-	-	-
Toluene	NV	14 J	-	-	-	2 J	-	-
Acenaphthylene	NV	160 J	-	-	-	-	-	-
Acenaphthene	NV	-	-	2,600 J	-	-	-	300 J
Dibenzofuran	NV	-	-	1,100 J	-	-	-	170 J
Fluorene	NV	-	-	2,600 J	-	-	-	460 J
Phenanthrene	NV	150 J	-	20,000	-	-	570 J	4,300
Anthracene	NV	290 J	-	5,900 J	-	-	-	1,100 J
Carbazole	NV	220 J	-	3,200 J	-	-	-	740 J
Fluoranthene	NV	640	86 J	32,000	-	57 J	1,200 J	6,000
Pyrene	NV	660	88 J	27,000	-	-	1,100 J	4,600
Butylbenzylphthalate	NV	-	-	-	-	-	260 J	-
Benzo(a)anthracene	1,300	-	-	16,000*	-	-	-	2,200*
Chrysene	1,300	410 J*	60 J	16,000*	-	-	540 Ja	2,500*
Bis(2-Ethylhexyl)phthalate	NV	-	-	1,600 J	-	-	8,700	770 J
Di-n-octylphthalate	NV	-	-	-	-	-	310 J	-
Benzo(b)fluoranthene	1,300	710	65 J	18,000*	-	-	1,000 J	2,100*
Benzo(k)fluoranthene	1,300	410 J	49 J	19,000*	-	-	840 J	2,400*
Benzo(a)pyrene	1,300	370 J*	67 J*	18,000*	-	-	-	2,300*
Indeno(1,2,3-cd)pyrene	1,300	260 J	42 J	3,000 J	-	-	-	360 J
Dibenz(a,h)anthracene	NV	79 J*	-	-	-	-	-	-
Benzo(g,h,i)perylene	NV	290 J	43 J	2,200 J	-	-	-	240 J
Heptachlor	0.8	-	-	-	-	-	-	0.97 J
Endosulfan I	NV	-	-	R	-	-	8.2 J	-

[1] NYSDEC Technical Guidance for Screening Contaminated Sediments, November 1993.
SCG Soil Cleanup Guidance Values
* SCG value exceedance
NV No SCG value available.
TCL Target Compound List
Footnotes defined in Appendix D.

Table 3-4
ANALYTICAL SUMMARY TABLE
PRELIMINARY SITE ASSESSMENT
VAN DE WATER PROPERTY
SEDIMENT
(TCL Pesticides/PCBs)

Sample ID		VDSD-1	VDSD-2	VDSD-3	VDSD-4	VDSD-5	VDSD-6	VDSD-7
Date Sampled		8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94	8/16/94
Date Received		8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
Depth (ft)		< 1	< 1	< 1	< 1	< 1	< 1	< 1
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Parameters	SCG[1] (µg/Kg)							
Heptachlor Epoxide	0.8	-	-	-	-	-	-	0.56 J
Dieldrin	100	R	-	15 J	-	1.5 J	R	R
4-4'-DDE	10	7.3 J	-	11 J	3.0 J	1.1 J	R	R
Endrin	800	9.1 J	-	R	-	-	R	-
Endosulfan II	NV	5.8 J	-	2.4 J	-	-	2.6 J	4.7 J
4,4'-DDD	10	3.4 J	-	7.5 J	-	-	6.5 J	R
4,4'-DDT	10	R	-	R	0.95 J	-	R	R
Alpha-chlordane	1.0	-	-	R	-	-	9.8 J	-
Gamma-chlordane	1.0	-	-	16 J	-	-	R	-
Gamma-BHC	NV	1.5 J	-	-	-	-	-	-
Endrin Aldehyde	NV	R	-	-	-	-	-	-
Endrin Keytone	NV	-	-	-	-	-	R	-
Delta-BHC	NV	-	-	-	-	-	-	R
Aldrin	100	-	-	-	-	-	-	R
Aroclor - 1242	0.8	-	-	52 J	-	-	250 J	-
Aroclor - 1254	0.8	59 J	-	R	-	-	100 J	-
Aroclor - 1260	0.8	110 J	-	33 J	-	-	72 J	-

[1] NYSDEC Technical Guidance for Screening Contaminated Sediments, November 1993.
SCG Soil Cleanup Guidance Value
* SCG value exceedance
NV No SCG value available.
TCL Target Compound List
Footnotes defined in Appendix D.



LEGEND

- BUILDING
- G3 SAMPLING GRID NUMBER
- + SAMPLING LOCATION
- 29 SOIL GAS VALUE (CGEs)

NOTE:

1. FIELDWORK CONDUCTED SEPTEMBER 6-8, 1994
2. SOIL GAS SAMPLE VALUES ARE IN CALIBRATION GAS EQUIVALENTS (CGEs) SUSTAINED ABOVE BACKGROUND

SOURCE: YEC 1994

FIGURE 3-2

PID SOIL GAS SURVEY SAMPLE LOCATION MAP

VAN DE WATER PROPERTY
NYSDEC SITE NO. 314040

direct push technology and an on-site mobile laboratory. Seventy-one soil vapor samples were collected and analyzed (Table 3-6) along 9 lines in 7 specific areas of the site (Figure 3-3). In addition, 4 groundwater samples and 5 soil samples were collected (Figure 3-1). The soil vapor and groundwater samples were analyzed for 14 TCL VOCs. The soil samples were analyzed at an off-site laboratory, Energy & Environmental Engineering, Inc. (E^3I) of Somerville, Massachusetts for full TCL and TAL parameters.

Soil vapor samples were collected into a 500 ml glass bulb using a Geoprobe© 1-inch inside diameter (ID) soil probe with disposable tip, 0.25-inch ID polyethylene tubing, and Isco© pump. Soil samples were collected using a Geoprobe© 1.25-inch diameter by 26-inch long large-bore sampler with acetate liner. Groundwater samples were obtained using 0.25-inch ID polyethylene tubing with a brass footvalve in the 1-inch ID soil sampler. The soil and groundwater sample locations were determined on the basis of the results of the soil vapor survey. No groundwater was encountered during several sample collection attempts in 44 Plaza due to the presence of low-permeability clays.

Soil Vapor Survey

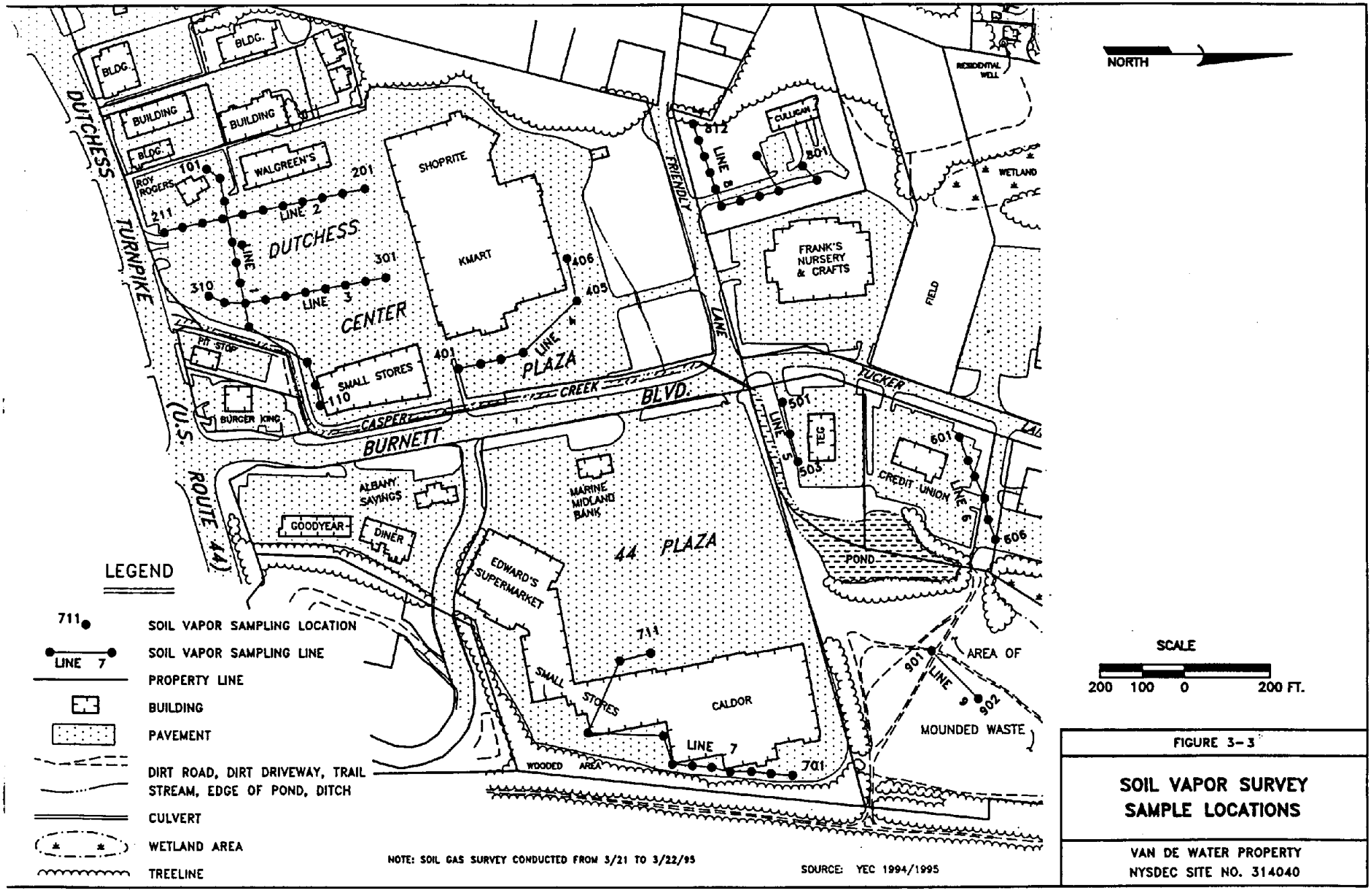
Seventy-one soil vapor samples were analyzed for fourteen target VOCs. Eight VOCs, benzene, toluene, tetrachloroethene, ethylbenzene, meta,para-xylene, ortho-xylene, trans 1,2-dichloroethene, and cis 1,2-dichloroethene, were detected in one or more of the samples. No VOCs were detected in 45 samples, and only 1 VOC was detected in 23 samples. Two or more VOCs were detected in three samples, L105, in front of Shop Rite, L406, east of K-Mart, and L902 on the mounded waste north of Caldor (Figure 3-3). The overall range of concentrations for the eight VOCs was a low for ortho-xylene at 1.8 ppb to a high for benzene at 70 ppb. The individual VOC ranges for concentrations were:

- Benzene - 70 ppb
- PCE - 3.8 ppb to 13 ppb
- Ethylbenzene - 3.7 to 21 ppb
- Meta,para-xylene - 3.1 to 53 ppb
- Ortho-xylene - 1.8 to 15 ppb
- Trans 1,2-DCE - 2.7 ppb
- Cis 1,2-DCE - 3.1 to 3.8 ppb

The Task 4 Soil Gas Survey Report is included in Appendix B.

Subsurface Soils

VOCs were detected in all five subsurface soil samples (BS) as shown in Table 3-7. The nine TCL VOCs detected (and their maximum concentration) are acetone (430 µg/Kg), benzene (7 µg/Kg), 2-butanone (120 µg/Kg), carbon disulfide (22 µg/Kg), ethylbenzene (2 µg/Kg), methylene chloride (2 µg/Kg), toluene (15 µg/Kg), vinyl chloride (73 µg/Kg), and xylene (total)(18 µg/Kg). The levels are all well below SCGs, except for



NOTE: SOIL GAS SURVEY CONDUCTED FROM 3/21 TO 3/22/95

SOURCE: YEC 1994/1995

FIGURE 3-3

SOIL VAPOR SURVEY SAMPLE LOCATIONS

VAN DE WATER PROPERTY
NYSDEC SITE NO. 314040

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary and Conclusions

The Van De Water Property PSA involved an investigation progressing from a general, non-intrusive PID survey of the entire site, to an area-specific, intrusive program searching for specific contaminants through a process of elimination involving 4 distinct field mobilizations.

During the first mobilization, an Assessment of Surface Water and Sediment Contamination, no significant contamination was identified with the exception of residual SVOCs from a 1993 off-site petroleum spill which accumulated in a stream bed on what is currently Town of Poughkeepsie property, an area recently delisted from the site.

During the second mobilization, a PID Soil Gas Survey, was conducted over the entire site and identified 7 distinct areas having possible VOC contamination.

During the third mobilization, the Initial Subsurface Sampling, soil vapor samples were collected and analyzed for 14 TCL VOCs in the 7 areas identified during the PID survey. In addition, subsurface soil and groundwater samples were collected from an area with suspected contamination near Shop Rite and K-Mart, and analyzed (the soils were sent off-site for full TCL and TAL analysis). Various VOCs were identified in all three media sampled in that particular area including PCE, TCA, TCE, DCE, VC, and some petroleum products.

During the fourth (final) mobilization, 4 monitoring wells were installed, and 5 groundwater and 4 subsurface soil samples were collected in an area near Shop Rite and K-Mart where in-situ municipal waste was thought to exist. Laboratory analytical results showed low-level contamination of groundwater and subsurface soils in MW-1, but little contamination in the downgradient monitoring wells MW-2, MW-3, and MW-4.

Based on the results of Tasks 1, 3, and 4 of this PSA investigation of the Van De Water Property, the following conclusions can be drawn:

- Disposal of hazardous wastes as defined by 6 NYCRR Part 371 has occurred on the Van De Water Property, based on a 1984 Right-To-Know form;
- VOCs, SVOCs, and inorganics, including cyanide, exceed SCGs and NYS Class GW Standards for those analytes in subsurface soils and groundwater;
- The shallow aquifer flows south and east toward Casper Creek in the vicinity of Shop Rite and K-Mart. It is likely that the aquifer east of the creek flows south and west toward the creek. The bedrock aquifer was not investigated during this investigation, but regional flow is probably toward the southwest

along regional geologic structures and toward regional topographic lows.

- Subsurface soils (moist clays) pose a barrier to off-site migration of contaminants, except during times of excessive high water; and

- Although there are some residential wells currently in use in the vicinity of the site, they appear to be upgradient to the area that contains in-situ municipal waste.

4.2 Recommendations

The NYSDEC previously classified the Van De Water Property site as Class 2a, which is a temporary designation for sites that have inadequate and/or insufficient data for inclusion in any of the other classifications. The VOCs PCE, TCE, TCA, DCE, and VC, various SVOCs, and cyanide have been detected in low concentrations in groundwater and soils at the site, particularly in Dutchess Center Plaza. Applicable standards and guidance values were exceeded in some instances, however, there appears to be little chance of off-site migration of contaminants. Municipal waste appears to be contained in two areas of the site, Dutchess Center Plaza (buried), and north of 44 Plaza (excavated and placed in a mound). The area comprising Dutchess Center Plaza (Figure 1-4, Area 'A'), and the area of mounded waste (Figure 1-4, Area 'B'), total approximately 25 acres.

It is recommended that the property owner of Area 'B' (area of mounded waste) undertake a study to characterize the waste and evaluate the options of disposal and/or containment. If removal of the waste to a regulated solid waste landfill for final disposal as per 6 NYCRR Part 360 is not feasible, or possible in the near term, an interim remedial measure (IRM) (e.g., impermeable cap and security fencing) would prevent migration of leachate into adjoining surface waters, avoid direct contact with waste, and minimize vector and other intrusive activity. If the mounded waste is not removed from the site, deed restrictions on future use of Area 'B' should be considered.

In addition, if there is further building construction, particularly in the Dutchess Center Plaza (Area 'A'), soil borings and excavations should be sampled and tested for hazardous waste contamination, and direct contact with subsurface materials and water should be avoided. An additional concern, especially during any intrusive activity at this site, is methane, a typical landfill gas previously documented at this site, which can be dangerous to site workers and equipment. Methane was not evaluated at this site because is not classified as a hazardous waste. It can be a significant problem associated with solid waste disposal, as are structural problems, leachate migration, and groundwater, surface water and air contamination. All these issues must be addressed as part of the development of any solid waste site.

The HRS Score calculated by URS for Task 1 was 13.32. The PA-Score calculated for this investigation was 45. The HRS PA-Score is presented in Appendix E.

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