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

336029

ADDITIONS/CHANGE TO REGISTRY: SUMMARY OF APPROVALS

SITE NAME MIDDLETOWN DUMP **DEC I.D. NUMBER** 336029

Current Classification 2a

Activity: ☐ Add as Class ___ ☑ Reclassify to 3 ☐ Delist Category ___ ☐ Modify ___

Approvals:

Regional Hazardous Waste Engineer	Yes	☑	No	☐	
NYSDOH	Yes	☑	No	☐	
DEE	Yes	☑	No	☐	
BHSC: a. Investigation Section	Yes	☑	No	☐	

b. Site Control Section [signature] Date 3/22/94

c. Director [signature] Date 3/23/94

DHWR Assistant Director [signature] Date 3/24/94

COMPLETION CHECKLIST

	YES	COMPLETED BY: INITIALS	DATE
OWNER NOTIFICATION LETTER?	☐		
ADJACENT PROPERTY OWNER NOTIFICATION LETTER?	☐		
ENB/LEGAL NOTICE SENT? (For Deletion Only)	☐		
COMMENTS SUMMARIZED/PLACED 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

Original-BHSC
Copy-REGION
Copy-DEE
Copy-DOH
Copy-PREPARER

REGISTRY SITE CLASSIFICATION DECISION

1. SITE NAME	2. SITE NO	3. TOWN/CITY/VILLAGE	4. COUNTY
Middletown Dump	336029	Middletown	Orange

5. REGION 3

6. CLASSIFICATION Current 2a Proposed 3 Unchanged __

7. LOCATION OF SITE (Attached U.S.G.S Topographic Map showing site Location)

a. Quadrangle	b. Site Latitude	Longitude	c. Tax Map Number
Middletown	41° 25' 40" N	74° 25' 30" W	49:1:8

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

The Middletown Dump is an inactive municipal landfill. An incinerator also operated on-site and was used to burn wastes, including liquid solvent wastes brought to the facility. Ash was disposed at the site.

a. Area 3 acres b. EPA ID Number NYD980507057

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

9. HAZARDOUS WASTES DISPOSED

400 tons of benzene, toluene (F005), methanol (F003), ethanol, oily waste, still bottom residue (unspecified, may be any combination of F001 to F005) were incinerated at site and the ash deposited in the landfill. Up to 50 tons of these wastes may also have been buried directly in the landfill. Ash from treatment and/or incineration of hazardous waste is hazardous waste in accordance with to 6 NYCRR Part 371.1.

10. ANALYTICAL DATA AVAILABLE

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

b. Contravention of Standards or Guidance Values

Secondary Maximum Contaminant Levels for copper, iron, and manganese were exceeded in domestic well samples.

NYS Class GA Groundwater Quality Standards for 1,2-dichloroethene, trichloroethene, iron, manganese, and sodium were exceeded in groundwater samples.

11. JUSTIFICATION FOR CLASSIFICATION DECISION

Site investigations conducted to date have documented disposal of hazardous waste at site and several contravention of standards but indicate that the site presents a relatively low ~~significant~~ threat to public health and the environment.

12. SITE IMPACT DATA

a. Nearest surface water: Distance 500 ft. Direction NW Classification D
b. Nearest groundwater: Depth 0-10 ft. Flow Direction unknown ( ) Sole Source ( ) Primary ( ) Principal
c. Nearest water supply: Distance 1000 mi. Direction South Active (X)Yes ( )No
d. Nearest building: Distance 0.2 mi. Direction South west Use

e. In State Economic Development Zone? ( )Y (X)N
f. Crops or livestock on site? ( )Y (X)N
g. Documented fish or wildlife mortality? ( )Y (X)N
h. Impact on special status fish or wildlife resource? ( )Y (X)N
i. Controlled site access? (X)Y ( )N
j. Exposed hazardous waste? ( )Y (X)N
k. HRS Score NA
l. For Class 2: Priority Category ___

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
City of Middletown	2 Mill Street, Middletown, New York	(914)343-3169

16. PREPARER

Ralph J Keating 12/22/93
Signature Date

NYSDEC, BHSC, WIS
M. Lisa Spahr, ABB Environmental Services
Name, Title, Organization

17. APPROVED

Charles M Sullivan 3/24/94
Signature Date

Asst Dir
Name, Title, Organization

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

CLASSIFICATION CODE: 3 REGION: 3 SITE CODE: 336029
EPA ID: NYD980507057

NAME OF SITE : Middletown Dump
STREET ADDRESS: Dolson Avenue (Route 17M)

TOWN/CITY:	COUNTY:	ZIP:
Middletown	Orange	10940

SITE TYPE: Open Dump- Structure- Lagoon- Landfill-X Treatment Pond-
ESTIMATED SIZE: 3 Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: City of Middletown
CURRENT OWNER ADDRESS.: 2 Mill Street, Middletown, NY
OWNER(S) DURING USE...:
OPERATOR DURING USE...:
OPERATOR ADDRESS.....:
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1952 To 1969

SITE DESCRIPTION:
This site was an active incinerator and landfill from 1952 to 1969, receiving municipal and commercial waste from the Town of Middletown. Approximately 450 tons of hazardous materials including benzene, toluene, ethanol, methanol, waste oil, and still bottom residues were transported to the landfill. Four hundred tons of the waste were incinerated, and the resulting ash was buried in the landfill. It is estimated that an additional 40 tons were incinerated and 10 tons were buried directly into the landfill. The site still receives construction and demolition debris from town activities such as road cleaning, tree pruning, and catch basin cleaning.
There is a potential for groundwater and/or surface water contamination due to leaching from the landfill. The closest residences are located within one-quarter mile of the landfill and are served by public water. Residents within one-half mile to the south of the site are supplied by private wells which may be hydraulically downgradient of the site.
A Phase I Investigation was completed in 1988. A Preliminary Site Assessment (PSA) was completed in 1993.

Sampling conducted during the PSA included surface water, sediment, domestic well water, soil borings and groundwater. Sediment samples indicated low concentrations of methylene chloride and acetone, and one surface water sample indicated methylene chloride was present. The subsurface samples revealed one analyte, trichloroethane at 5ppb. In ground water, two organic compounds were found exceeding NYS Class GA Groundwater Standards, 1-2 dichloroethene @ 36 ppb and trichloroethene @ 34 ppb.

HAZARDOUS WASTE DISPOSED:

TYPE	QUANTITY (units)
Waste solvents methanol (F003) toluene (F005) still bottom residue (unspecified, may be any combination of F001 through F005 wastes)	400 tons (incinerated & resulting ash disposed) 10-50 tons non-incinerated

SITE CODE: 336029

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

CONTRAVENTION OF STANDARDS:
Groundwater-X Drinking Water- 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: Gravelly silt loam of glacial origin, bedrock - 60 ft.
GROUNDWATER DEPTH: 0-10 ft.

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

The levels of organic contamination found in groundwater are low and infrequent (only 1 of 4 wells showed exceedance of groundwater standard). The levels found do not represent a significant threat because of the low levels found (less than 50 ppb) and the one-time occurence.

ASSESSMENT OF HEALTH PROBLEMS:

Hazardous waste deposition at the site has been confirmed and there is the potential for groundwater, soil, and surface water contamination due to leaching of material from the landfill. Limited surface water/sediment, groundwater, and surface soil sampling do not indicate any significant contamination. Sampling results indicate the presence of secondary inorganic contaminants in nearby residential drinking water supply wells. The presence of these compounds at the concentrations detected does not pose a health hazard. The site is unfenced and the the access road to the site is not secured allowing trespassers easy access to the site. These persons may be exposed to potentially contaminated soils/waste materials and physical hazards.

migration of contaminants via groundwater to nearby private wells and/or surface waters.

The report also concluded that Middletown Dump may also pose a potential environmental hazard. Contaminant migration to surface waters via ground water or surface water runoff may affect wildlife. There are two brooks in the vicinity of the site and a wetland approximately one-half mile due west of the site. There are several significant habitats within 10 miles of the site; however, the nearest is a bird roosting area 2 miles from the site. None of these significant habitat areas are expected to be adversely affected by potential contamination at the Middletown Dump.

3.5 CONTAMINATION ASSESSMENT

The following subsections present the results of analysis of environmental samples collected from Middletown Dump by ABB-ES and NYSDOH during the PSA. Evaluation of the data is limited to the project purposes of (1) establishing whether hazardous waste was disposed at the site, and (2) evaluating whether those wastes pose significant threat to public health or the environment. Because existing data documents hazardous waste disposal at the site, significant threat to public health or the environment requires evaluation.

3.5.1 Surface Soil Analytical Results

Surface soil sample SS-003 was collected and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and inorganics (see Table 3). The sample contained 18 micrograms per kilogram (μg/kg) of the VOC methylene chloride. Methylene

Table 3
Surface Soil Sampling Data

Middletown Dump Site
Middletown, New York

PARAMETER	CRQL/ CRDL	SS-003
TCL Volatile Organic Compounds (µg/kg)		
Carbon Disulfide	10	R
Methylene Chloride	10	18
TCL Semivolatile Organic Compounds (µg/kg)		
2-Methylnaphthalene	330	1 J
Acenaphthene	330	20 J
Dibenzofuran	330	4 J
Diethylphthalate	330	10 J
Fluorene	330	12 J
Phenanthrene	330	130 J
Anthracene	330	15 J
Carbazole	330	11 J
Di-n-butylphthalate	330	34 J
Fluoranthene	330	310 J
Pyrene	330	250 J
Butylbenzylphthalate	330	320 J
Benzo(a)Anthracene	330	110 J
Chrysene	330	140 J
Di-n-octylphthalate	330	11 J
Benzo(b)Fluoranthene	330	83 J
Benzo(k)Fluoranthene	330	86 J
Benzo(a)Pyrene	330	79 J
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/kg)		
Dieldrin	3.3	6.5 J
4,4'-DDE	3.3	240
Endrin	3.3	4.1 J
4,4'-DDD	3.3	120 J
4,4'-DDT	3.3	290
TCL Inorganic Analytes (mg/kg)		
Aluminum	40	15,500
Antimony	12	18.2 J
Arsenic	2	R
Barium	40	65.3
Beryllium	1	0.58 J
Calcium	1,000	1,760 J
Chromium	2	19.9 J
Cobalt	10	10.0 J
Copper	5	17.3
Iron	20	24,600
Lead	0.6	24.8
Magnesium	1,000	4,720
Manganese	3	504
Nickel	8	24.2 J
Potassium	1,000	2,070
Selenium	1	R
Thallium	2	R
Vanadium	10	23.5
Zinc	4	93.5 J

Notes:
- = Non detect
CRDL = Contract Required Detection Limit (inorganics)
CRQL = Contract Required Quantitation Limit (organics)
J = Estimated
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
R = Rejected Results

chloride is a possible constituent of F001, F002, and F005 wastes, disposal of which has been documented at the site. SVOC analyses detected PAHs and phthalates at concentrations below the Contract Required Detection Limits(CRDLs). However, the concentration detected is very low, and methylene chloride is a common laboratory contaminant.

Low concentrations (i.e., less than 300 μg/kg) of five pesticides, dieldrin, 4,4'-DDE, endrin, 4,4'-DDD, and 4,4'-DDT, were detected in the sample. These concentrations are consistent with the background levels that would be expected in a predominantly rural/suburban area. No PCBs were detected in this sample.

Two inorganic species, copper and zinc, were detected at concentrations greater than expected background in New York soils. However, the observed concentrations are within normal ranges for soils in the eastern United States and may represent high local background levels (see Table 4).

3.5.2 Surface Water/Sediment Analytical Results

One surface water and two sediment samples were collected and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and inorganics (see Tables 5 and 6).

Surface Water Sample. No VOCs or pesticides/PCBs were detected in surface water sample at concentrations above detections limits (see Table 5). Three SVOCs, phenol, 4-methylphenol, and diethylphthalate, were detected in SW-001 and SW-001 DUP. The concentrations of phenols detected were near the CRDL for these compounds; three of the concentrations were estimated at less than the CRDL. The NYS Class D Surface Water Quality Standard for total chlorinated

TABLE 4
Ranges of Background Inorganic Concentrations in Soil

Middletown Dump Site
Middletown, New York

COMPOUND	NEW YORK REGION[1] (mg/kg)	EASTERN UNITED STATES[2] (mg/kg)
Aluminum	1,000 – 25,000	7,000 – > 10,000
Arsenic	3 – 12	<0.1 – 73
Barium	15 – 600	10 – 1,500
Beryllium	0 – 1.75	<1 – 7
Cadmium	0.01 – 2	NA
Calcium	130 – 35,000	100 – 280,000
Chromium	1.5 – 40	1 – 1,000
Cobalt	2.5 – 60	<0.3 – 70
Copper	<1 – 15	<1 – 700
Iron	17,500 – 25,000	10 – >100,000
Lead	10 – 37	<10 – 300
Magnesium	1,700 – 6,000	50 – 50,000
Manganese	50 – 5,000	<2 – 7,000
Mercury	0.042 – 0.066	0.01 – 3.4
Nickel	0.5 – 25	<5 – 700
Potassium	8,500 – 43,000	50 – 37,000
Selenium	<0.1 – 0.125	<0.1 – 3.9
Silver	NA	NA
Sodium	6,000 – 8,000	< 50 – 50,000
Vanadium	25 – 60	<7 – 300
Zinc	37 – 60	<20 – 2,900

NOTES:

[1] Concentrations obtained from "Background Concentrations of 20 Elements in Soils with Special Regard for New York State" (no date). Paper prepared by E. Carol McGovern, NYSDEC Wildlife Resouces Center.

[2] Shacklette, M.T. and J.G. Boerngen, 1984. "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States"; USGS Professional Paper 1270.

mg/kg = milligrams per kilogram
NA = Not Available

Table 5
Surface Water Sampling Data

Middletown Dump Site
Middletown, New York

PARAMETER	CRQL/ CRDL	SW-001	SW-001 DUP	CWA-AWQC Water and Organisms	NYS Class D Surface Water Quality Standards [1]
TCL Volatile Organic Compounds (µg/L)					
None detected at concentrations above detection limits					
TCL Semivolatile Organic Compounds (µg/L)					
Phenol	10	5 J	7 J	3,500	1 [2]
4-Methylphenol	10	7 J	14	NS	1 [2]
Diethylphthalate	10	42	72	350,000	NS
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/L)					
None detected at concentrations above detection limits					
TCL Inorganic Analytes (µg/L)					
Aluminum	200	12,100	13,000	NS	NS
Arsenic	10	10.4	12.2	0.0022	360 [3]
Barium	200	160 J	163 J	1,000	NS
Calcium	5,000	53,200	50,600	NS	NS
Chromium	10	20.4	16.3	NS	2,718 [a]
Cobalt	50	9.2 J	10.2 J	NS	110 G
Copper	25	33.2	27.0	NS	29.68 [b]
Iron	100	19,300	22,700	300	300
Lead	3	95.2	115	50	165 [c]
Magnesium	5,000	10,500	10,500	NS	NS
Manganese	15	2,310	2,510	50	NS
Nickel	40	20.2 J	25.5 J	13.4	2795.50
Potassium	5,000	10,400	8,990	NS	NS
Sodium	5,000	13,500	12,400	NS	NS
Vanadium	50	25.4 J	17.3 J	NS	190 [4]
Zinc	20	225 J	213 J	NS	506

NOTES:

[1] = New York State Surface Water Quality Standards – 6 NYCRR 703 (September 1, 1991). Source: Division of Water and Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values (November 15, 1991).

[2] = NYS Surface Water Standard of 1.0 µg/L* is for total chlorinated phenols.

[3] = NYS Groundwater and Surface Water Standards for arsenic are for dissolved arsenic.

[4] = NYS Surface Water Quality Standard for vanadium apply to acid-soluble form.

AWQC = Ambient Water Quality Criteria

CRDL = Contract Required Detection Limit (inorganics)

CRQL = Contract Required Quantitation Limit (organics)

CWA = Clean Water Act

DUP = Duplicate

G = Guidance values taken from NYS Division of Water Technical and Operational Guidance Services (Ambient Water Quality Standards and Guidance Values, November, 1991).

J = Estimated

NS = No Standard

µg/L = micrograms per liter

[a] = exp(0.819[/n (ppm hardness)] + 3.688) apply to acide soluble form where:
ppm hardness = $CaCO_3$/L = 2.497 [Ca in mg/L] + 4.118 [Mg in mg/L] see Volume II

[b] = exp(0.9422[/n (ppm hardness)] – 1.464) apply to acid soluble form, see Volume II

[c] = exp(1.266[/n (ppm harness)] – 1.416) apply to acide soluble form, see Volume II

Table 6
Sediment Sampling Data

Middletown Dump Site
Middletown, New York

PARAMETER	CRQL/ CRDL	SD-001 DUP		SD-001		SD-002	
TCL Volatile Organic Compounds (µg/kg)							
Methylene Chloride	10	19		–		–	
Acetone	10	71	J	–		–	
Carbon Disulfide	10		R		R		R
TCL Semivolatile Organic Compounds (µg/kg)							
4-Methylphenol	330	–		33	J	71	J
Naphthalene	330	12	J	–		71	J
2-Methylnaphthalene	330	7	J	12	J	55	J
Acenaphthylene	330	9	J	33	J	47	J
Acenaphthene	330	7	J	25	J	54	J
Dibenzofuran	330	5	J	14	J	38	J
Diethylphthalate	330	12	J	–		–	
Fluorene	330	–		–		70	J
Phenanthrene	330	89	J	350	J	800	J
Anthracene	330	8	J	–		100	J
Carbazole	330	7	J	31	J	73	J
Di-n-butylphthalate	330	–		–		58	J
Fluoranthene	330	250	J	1100	J	1300	J
Pyrene	330	240	J	870	J	960	J
Butylbenzylphthalate	330	–		–		500	J
Benzo(a) Anthracene	330	96	J	400	J	860	J
Chrysene	330	130	J	510	J	1200	
Di-n-octylphthalate	330	14	J	17	J	42	J
Benzo(b) Fluoranthene	330	84	J	330	J	660	J
Benzo(k) Fluoranthene	330	78	J	310	J	730	J
Benzo(a) Pyrene	330	–		230	J	780	J
Indeno(1,2,3-c,d) Pyrene	330	–		–		560	J
Benzo(g,h,i)perylene	330	–		–		560	J
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/kg)							
Endrin	3.3	–		–		32	J
4,4'-DDD	3.3	–		–		30	J
Endolsulfan Sulfate	3.3	–		19	J	–	
4,4'-DDE	3.3	–		–		9.5	J
4,4'-DDT	3.3	–		–		15	J
alpha-Chlordane	1.7	–		–		9.1	J
gamma-Chlordane	1.7	–		–		8.8	J
Aroclor-1254	33	–		–		120	J
TCL Inorganic Analytes (mg/kg)							
Aluminum	40	21,000	J	23,600	J	19,600	J
Antimony	12	–		–		17.8	J
Arsenic	2		R		R		R
Barium	40	147		153		139	
Beryllium	1	0.87	J	0.91	J	0.94	J
Calcium	1,000	2,540	J	2,740	J	6,310	J
Chromium	2	19.9	J	28.8	J	32.1	J
Cobalt	10	13.4	J	13.7	J	16.7	
Copper	5	11.5		43.4		72.7	
Iron	20	24,900		27,600		31,100	
Lead	0.6	50.7		154		366	
Magnesium	1,000	3,040		5,460		7,080	

Table 6
Sediment Sampling Data

Middletown Dump Site
Middletown, New York

PARAMETER	CRQL/ CRDL	SD-001 DUP	SD-001	SD-002
TCL Inorganic Analytes (mg/kg) (continued)				
Manganese	3	4,720 J	509 J	697
Mercury	0.04	–	0.25	0.38
Nickel	8	14.6 J	34.1 J	41.9 J
Potassium	1,000	918 J	3,110	2,290
Selenium	1	R	R	R
Thallium	2	R	R	R
Vanadium	10	29.1	38.5	37.7
Zinc	4	145 J	294 J	376 J

NOTES:
– = Nondetect
CRDL = Contract Required Detection Limit (inorganic)
CRQL = Contract Required Quantitation Limit (organic)
DUP = Duplicate
J = Estimated
R = rejected result
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram

phenols is less than the CRDL for this analytical method.

Five inorganic species, copper, iron, lead, manganese, and nickel, were detected in surface water samples at concentrations exceeding either the CWA-AWQC or the NYS Surface Water Quality Standards for Class D water or both. However, both the surface water sample and its duplicate were extremely turbid and were analyzed unfiltered. The high concentrations of metals in these samples most likely reflects the amount of particulate matter in the samples.

Sediment Samples. Two VOCs, methylene chloride and acetone, were detected in the duplicate of SD-001 at concentrations of 19 μg/kg and 71 J μg/kg, respectively (see Table 6). Methylene chloride disposal may be site-related; methylene chloride was also detected in the surface soil sample. Both acetone and methylene chloride are common laboratory contaminants. Acetone disposal at the site has not been reported; however, acetone is a common contaminant in industrial grade methanol, which is a suspected site-related waste.

A total of 18 semivolatile PAHs were detected in the sediment samples at estimated concentrations ranging from 1300 μg/kg fluoranthene in SD-002 to less than 10 μg/kg for several PAHs. Fourteen of these 18 were also detected in soils from the site at similar concentrations during the NUS investigation. The presence of PAHs is most likely due to the disposal of ash from the former incinerator on-site. SVOC analyses also detected phthalates at estimated concentrations less than the CRDLs.

Low concentrations (less than 50 μg/kg) of seven pesticides were detected in the sediment samples. There are no records of pesticide disposal on the site, these

occurrences are expected to represent background levels resulting from pesticide applications in the local area.

There are no applicable standards for comparison to the inorganic concentrations detected in sediments. However, the ratios of the concentrations of copper, iron, lead, manganese, and nickel are similar to those detected in surface water. This indicates that turbidity in the surface water samples may have caused the high inorganic concentrations in the surface water samples, since the sediments are expected to be the source of the solids in the surface water samples.

3.5.3 Domestic Well Analytical Results

NYSDOH collected and analyzed four domestic well samples for drinking water VOCs, SVOCs, pesticides/PCBs, and inorganics. These data were provided to ABB-ES by NYSDEC for inclusion in this report (Table 7). Completed Groundwater Usage Surveys are presented in Volume II.

According to the surveys, all of the domestic wells sampled were drilled wells ranging in depth from 131 to 200 feet. All of the domestic well owners reported odor problems. The residents at DW-1 and DW-2 also complained of rust staining and color. DW-2 reported a taste to the water. All well owners except for DW-3 have a water softening system. All of the homes are serviced by private septic systems located 60 to 100 feet from the wells.

No VOCs, SVOCs, or pesticides/PCBs were detected at concentrations above the detection limits in the domestic well samples.

Table 7
NYSDOH Domestic Well Sampling Data

Middletown Dump Site
Middletown, New York

PARAMETER	DW-1	DW-2	DW-3	DW-4	New York Drinking Water Supply MCLs [1]	USEPA MCL [2]	USEPA MCLG [2]
Drinking Water Volatile Organic Compounds (µg/L)							
None detected at concentrations above detection limits							
Drinking Water Semivolatile Organic Compounds (µg/L)							
None detected at concentrations above detection limits							
Drinking Water Pesticides and Polychlorinated Biphenyl Compounds (µg/L)							
None detected at concentrations above detection limits							
Drinking Water Inorganic Analytes (µg/L)							
Barium	194	38	155	94	2,000	2,000	2,000
Calcium	49,100	49,600	44,400	37,900	NS	NS	NS
Copper	1,330	–	–	–	1,000 S	TT[3]	1,300
Iron	885	455	188	50	300 *	300 S	NS
Magnesium	15,800	8,400	8,800	11,700	NS	NS	NS
Manganese	176	252	105	66	300 *	50 S	NS
Nickel	–	–	8	–	NS	100	100
Potassium	1,900	1,200	1,100	1,500	NS	NS	NS
Sodium	29,300	49,500	32,000	46,300	NS	NS	NS
Strontium	1,010	516	796	1,050	–	NS	NS
Zinc	–	–	13	–	5,000	500 S	NS

NOTES:

[1] = New York State Drinking Water Supply MCLs – 10 NYCRR 5-1 (January 6, 1993).

[2] = U.S. Environmental Protection Agency 1993. Drinking Water Regulations and Health Advisories. Prepared by Office of Water; Washington, D.C. May.

[3] = Action Level for copper is 1,300 µg/L

– = Nondetect

* = when iron and manganese are both present, NY State Class GA Standard is 500 µg/L for the total concentration of both compounds.

MCL = Maximum Contaminant Level

MCLG = Maximum Contaminant Level Goal

NS = No Standard

P = Standard is proposed

S = Secondary Maximum Contaminant Level

TT = Treatment Technique

µg/L = micrograms per liter

USEPA = U.S. Environmental Protection Agency

Three inorganic species, copper, iron, and manganese, were detected at concentrations above standards. Two samples, DW-1 and DW-2, contained concentrations of iron (885 and 455 μg/L) greater than the NYS Drinking WaterStandard and USEPA Secondary Maximum Contaminant Level (SMCL) (40 CFR 143.3), of 300 μg/L. The sample from DW-1 contained a concentration of copper (1,330 μg/L) exceeding the NYS Drinking Water Standards 1,000 μg/L. All four samples contained manganese at concentrations exceeding the USEPA SMCL of 50 μg/L but less than the NYS standard of 300 μg/L. All of the exceeded standards are SMCLs, which are aesthetic standards based on taste, color, staining, and odor rather than health considerations.

3.5.4 Subsurface Soil Analytical Results

ABB-ES collected three subsurface soil samples (BS-101, BS-103, and BS-104) from the screened intervals of the respective monitoring wells, as shown on Figure 2. A duplicate sample (BS-103 DUP) was also collected from MW-103. One subsurface soil sample was collected from each boring (except MW-102) previous to monitoring well construction. The samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and inorganics. The analytical results are summarized in Table 8.

One TCL VOC, trichloroethene at 5 J μg/kg, was detected in sample BS-103. A total of seven TCL SVOCs were detected, primarily in sample BS-103. With the exception of bis(2-Ethylhexyl)phthalate (2,900 μg/kg at BS-101), all SVOCs detected were estimated at relatively low concentrations. Two pesticides, endrin aldehyde (8.7 J) and 4,4'-DDT (2.4 J), were detected in BS-101 and BS-103 DUP, respectively.

Table 8
Subsurface Soil Sampling Data

Middletown Dump Site
Middletown, New York

COMPOUND	CRQL/ CRDL	BS-101 34-36 ft. bgs	BS-103 23-25 ft. bgs	BS-103 DUP 23-25 ft. bgs	BS-104 10-12 ft. bgs
TCL Volatile Organic Compounds (µg/kg)					
Trichloroethene	5	–	5 J	–	–
TCL Semivolatile Organic Compounds (µg/kg)					
bis(2-Ethylhexyl)phthalate	330	2900	–	–	–
Benzo(a)Anthracene	330	–	–	61 J	–
Chrysene	330	–	–	58 J	–
Di-n-octylphthalate	330	–	–	–	49 J
Fluoranthene	330	–	–	140 J	–
Phenanthrene	330	–	–	160 J	–
Pyrene	330	–	–	73 J	–
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/kg)					
Endrin Aldehyde	3.3	8.7 J	–	–	–
4,4'-DDT	3.3	–	–	2.4 J	–
TCL Inorganic Compounds (mg/kg)					
Aluminum	40	14000	16400	17400	13200
Antimony	12	–	11.8 J	–	–
Arsenic	2	6.2 J	9.1	7.6	5.3
Barium	40	59.1	105	129	43.6
Beryllium	1	0.84 J	0.99 J	1.2	0.59 J
Cadmium	1	1.0 J	–	–	–
Calcium	1000	15000	21200	13300	1980
Chromium	2	24.6 J	23.6	25.5	18.3
Cobalt	10	13.5	18.9	19.9	13.7
Copper	5	42.8 J	41.4	38.5	29.8
Iron	20	28300	34600	35600	28100
Lead	0.6	18.6 J	48.9 J	36.0 J	13.4 J
Magnesium	1000	8670	8010	7930	5180
Manganese	3	600	803	1250	750
Nickel	8	34.7	41.2 J	48.3 J	35.0
Potassium	1000	1520	1670	1690	1080
Vanadium	10	19.2	20.8	24.3	15.0
Zinc	4	79.3	122 J	103 J	87.3 J

NOTES:
- = Not Detected
CRDL = Contract Required Detection Limit (inorganics)
CRQL = Contract Required Quantitation Limit (organics)
DUP = Duplicate Sample
ft bgs = feet below ground surface
J = Estimated
mg/kg = milligrams per kilogram
TCL = Target Compound List
µg/kg = micrograms per kilogram

Copper, iron, lead, magnesium, nickel, and zinc were detected in several samples at elevated levels. Inorganic concentrations in subsurface soil samples were similar from sample to sample, and also representative of background soils, as compared to New York Region and Eastern United States background concentrations (see Table 4).

3.5.5 Groundwater Analytical Results

ABB-ES collected four groundwater samples (MW-101 through MW-104) from the locations shown on Figure 2. A duplicate sample MW-101 DUP was also collected and all samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and total inorganics. Additionally, samples were collected from MW-102 and MW-104 and analyzed for TCL dissolved inorganics and TSS. A duplicate sample for TCL dissolved inorganics was also collected from MW-104. Samples to be analyzed for TCL dissolved inorganics were collected if development records indicated that turbidity readings did not stabilize below 50 NTUs. Table 9 summarizes the results of the groundwater sampling, and includes values for pH and specific conductivity for each groundwater sample as measured at the time of sampling.

VOCs 1,2-dichloroethene (total) and trichloroethene were detected in MW-103 at concentrations of 36 and 34 μg/L, respectively. The concentration of trichloroethene in MW-103 exceeds the NYS Groundwater Quality Class GA Standard of 5 μg/L. The concentration of 1,2-dichloroethene exceeds the principal organic contaminant standard of 5 μg/L. Toluene (3 J μg/L) was also detected in MW-101. Estimated concentrations of SVOCs bis(2-Ethylhexyl)phthalate and diethylphthalate were detected in three of the four

Table 9
Groundwater Sampling Data

Middletown Dump Site
Middletown, New York

COMPOUND	CRDL	MW-101	MW-101 DUP	MW-102	MW-103	MW-104	MW-104 DUP	NYS Class GA Standards [1]
TCL Volatile Organic Compounds (µg/L)								
1,2-Dichloroethene (total)	10	–	–	–	36	–	NA	5
Trichloroethene	10	–	–	–	34	–	NA	5
Toluene	10	3 J	–	–	–	–	NA	5
TCL Semivolatile Organic Compounds (µg/L)								
bis(2-Ethylhexyl)phthalate	10	–	2 J	3 J	–	3 J	NA	50
Diethylphthalate	10	–	–	–	–	4 J	NA	50 G
TCL Pesticides and Polychlorinated Biphenyl Compounds (µg/L)								
None were detected above detection limits								
TCL Total Inorganic Compounds (µg/L)								
Aluminum	200	69.1 J	65.2 J	4090	77.1 J	1690	NA	NS
Antimony	60	–	54.7 J	–	–	–	NA	3 G
Barium	200	71.5 J	72.8 J	67.6 J	85.8 J	38.1 J	NA	1,000
Calcium	5000	33500	33400	152000	304000 J	150000 J	NA	NS
Chromium	10	–	8.3 J	15.8	–	–	NA	50
Cobalt	50	–	–	11.6 J	–	–	NA	NS
Copper	25	–	–	19.5 J	–	–	NA	200
Iron	100	87.6 J	64.6 J	8920	38000 J	3290	NA	300 *
Lead	3	–	–	8.1	–	–	NA	25
Magnesium	5000	6300	6130	27900	62400 J	23800	NA	35,000 G
Manganese	15	137	133	672	1030 J	1820	NA	300 *
Mercury	0.2	–	–	–	0.41 J	–	NA	2
Potassium	5000	–	–	2920 J	53300 J	14200 J	NA	NS
Silver	10	–	–	–	–	7.6 J	NA	50
Sodium	5000	47300	47400	32000 J	126000 J	144000	NA	20,000
Vanadium	50	–	–	14.0 J	–	–	NA	NS
Zinc	20	–	–	32.8	156 J	20.5	NA	300
TCL Dissolved Inorganic Compounds (µg/L)								
Antimony	60	NA	NA	–	NA	–	33.8 J	3 G
Barium	200	NA	NA	52.9 J	NA	–	–	1,000
Cadmium	5	NA	NA	4.7 J	NA	–	6.5	10
Calcium	5000	NA	NA	162000	NA	176000 J	172000	NS
Magnesium	5000	NA	NA	27800	NA	25900	25500	35,000 G

Table 9
Groundwater Sampling Data

Middletown Dump Site
Middletown, New York

COMPOUND	CRDL	MW-101	MW-101 DUP	MW-102	MW-103	MW-104	MW-104 DUP	NYS Class GA Standards [1]
TCL Dissolved Inorganic Compounds (µg/L) (continued)								
Manganese	15	NA	NA	582	NA	1810	1800	300
Potassium	5000	NA	NA	–	NA	16600 J	16600	NS
Selenium	5	NA	NA	R	NA	R	R	10
Sodium	5000	NA	NA	40400 J	NA	149000	147000	20,000
Thallium	10	NA	NA	R	NA	R	R	4 G
Miscellaneous								
Total Suspended Solids (mg/L)		NA	NA	382	NA	160	NA	500
pH (field parameter)		8.1	8.1	8.1	6.7	6.5	6.5	NS
Specific Conductivity (µmhos/cm)		290	290	570	1490	860	860	NS

NOTES:

[1] = New York State Groundwater Quality Standards – 6 NYCRR 703 (September 1, 1991) and Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standard and Guidance Values (November 15, 1991).

* = when iron and manganese are both present, NY State Class GA standard is 500 µg/L for the total concentration of both compounds

– = Not Detected

CRDL = Contract Required Detection Limit (inorganics)

CRQL = Contract Required Quantitation Limit (organics)

DUP = Duplicate Sample

G = guidance value

J = Estimated

mg/L = milligrams per liter

NA = Not Analyzed

NS = no standard promulgated

R = Rejected

TCL = Target Compound List

µg/L = micrograms per liter

µmhos/cm = micromohs per centimeter

monitoring wells. Pesticides/PCBs were not detected in any of the wells above detection limits.

Eighteen TCL total and dissolved inorganics were detected in one or more of the groundwater samples.

Sodium was detected in filtered and unfiltered samples from all four wells at concentrations ranging from 32,000 μg/L in MW-102 to 149,000 μg/L in MW-104; all in excess of the NYS Class GA Standard of 20,000 μg/L. Iron and manganese concentrations in unfiltered samples from MW-102, MW-103, and MW-104 exceeded the standards, 300 μg/L for both. Manganese concentrations in the filtered samples from MW-102 and MW-104 also exceeded the standard.

The inorganic data suggest that the iron detected in the unfiltered samples was primarily the result of the particulate matter suspended in the samples. The sodium and manganese, however, appear to be in dissolved form in the groundwater samples.

4.0 ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

4.1 HAZARDOUS WASTE DEPOSITION

The PSA Task 1 report (Jordan, 1990) documented disposal of the following hazardous wastes (according to 6 NYCRR 371.4(b)) at the Middletown Dump site between 1952 and 1968:

- methanol — F003
- toluene — F005
- still bottom residue — unspecified, may be any combination of F001 through F005 wastes

The presence of methylene chloride in the surface water sample (18 μg/kg) and one sediment sample (19 μg/kg), acetone in the sediment sample (71 J μg/kg), and trichloroethene (34 μg/L) and 1,2-dichloroethene (36 μg/L) in the groundwater sample from MW-103 suggests that hazardous waste constituents may be migrating from the landfill boundary. However, the detected concentrations were sporadic and relatively low.

PAHs were detected by NUS and ABB-ES in surface soils from the dump and sediment samples. There is no documentation of the disposal of these materials at the site but they most likely result from incinerated waste materials disposed at the site. According to 6 NYCRR 371.1, ash produced by treatment (including incineration) of hazardous waste is hazardous waste.

4.2 SIGNIFICANT THREAT DETERMINATION

NYSDEC regulations pertaining to Inactive Hazardous Waste Sites, 6 NYCRR Part 375, set forth a number of definitions of significant threat (NYSDEC, 1992a). For purposes of the PSA investigation, a significant threat is established by the contravention of environmental quality regulations. At the Middletown Dump site, significant threat was evaluated by comparing site groundwater analytical results to NYS Class GA Groundwater Quality Standards, domestic well data to drinking water standards, and surface water analytical results to NYS Surface Water Quality Standards (Class D) and Clear Water Act - Ambient Water Quality Standards. On the basis of these comparisons, ABB-ES believes that site soils and groundwater have been affected by waste disposal at the dump but not to the extent that the site poses a significant threat.

The impact of the landfill was most apparent in the soils and groundwater from MW-103. The soil from the screened interval contained a trace concentration trichloroethene and estimated concentrations of five PAHs (all at concentrations less than 160 μg/kg). Concentrations of iron, lead, magnesium, nickel, and zinc were also above the expected background levels. Groundwater from MW-103 contained two VOCs (1,2-dichloroethene [36 μg/L] and trichloroethene [34 μg/L]) at concentrations in excess of the NYS standards of 5 μg/L for both compounds. Groundwater samples from the four wells contained concentrations of sodium (ranging from 32,000 to 144,000 μg/L) in excess of the standard, 20,000 μg/L. Iron and manganese was detected in MW-102, MW-103, and MW-104 at concentrations above the standards, 300 μg/L for both species. The highest concentrations of most inorganics were detected in MW-103, characteristic of the leachate in the groundwater.

Despite the groundwater standard exceedances, ABB-ES believes that contaminant migration from the site via groundwater does not pose an immediate significant threat to public health or the environment. The VOCs detected were both less than 50 μg/L; low concentrations that may not be replicated in subsequent sampling rounds. The distribution of high levels of inorganics, highest in MW-103 and MW-104, suggests the effects of leachate contamination; however, the domestic well data also contained high levels of inorganics species and it is likely that the background levels of some inorganics are high, relative to the standards. To the extent that the high inorganics in groundwater are indicative of leachate contaminant migration, they may provide a mechanism to track the impact of the dump over time.

The presence of PAHs in soils and sediments at the site also indicate the effects of waste disposal at the site. A total of 18 different PAHs were detected in subsurface and surface soils, and sediments at the site by NUS in previous investigations and by ABB-ES in this latest investigation. The PAHs result from the disposal of incinerator ash at the dump. The PAHs are not expected to represent a significant threat since the concentrations are estimated, and are relatively low (close to or below the sample-specific detection limits). PAHs are not mobile in the environment, they have very low solubility and a high affinity to adsorb to soil particles. The primary migration pathway is flow in surface water via entrained soil particles.

Pesticide contamination detected in surface soils and sediments from the site represent background concentrations, most likely due to the residue of private and commercial applications.

Although the analytical program detected the effects of contaminant migration and sporadic standard exceedances, the Middletown dump site does not pose a significant threat to public health and the environment under current conditions.

4.3 RECOMMENDATIONS

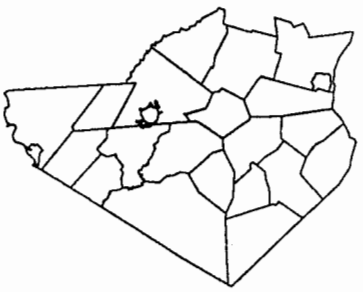
ABB-ES recommends that the site be reclassified as a Class 3 site; hazardous waste disposal has been documented but the site does not pose a significant threat to public health or the environment. Site investigations have indicated impacts from waste disposal at the site, however, the current extent of contamination and rate of migration do not represent a significant threat. In the interim between reclassification and subsequent investigations, periodic groundwater sampling and analysis to monitor contaminant migration is warranted.

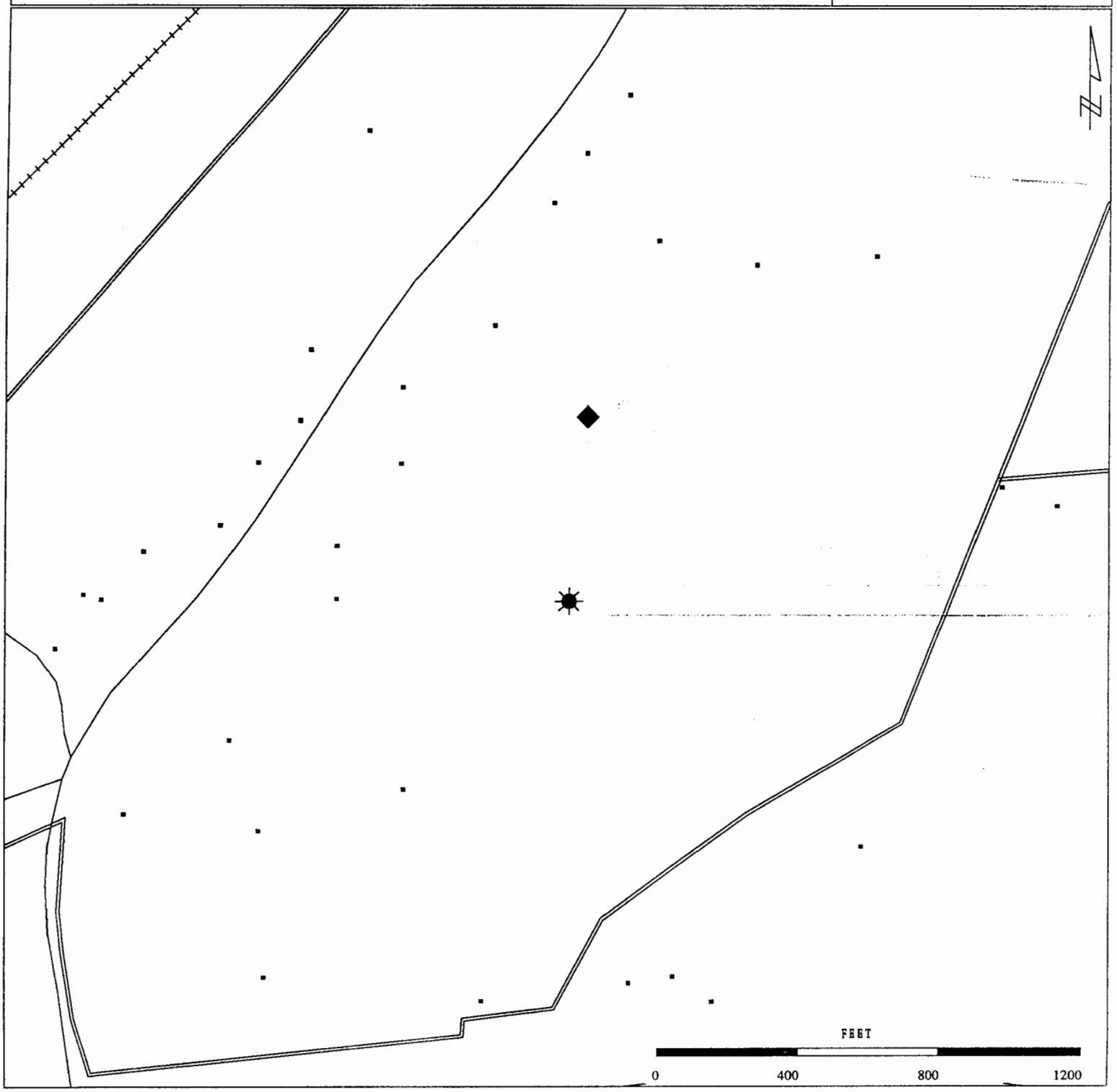
DEC - INACTIVE HAZARDOUS WASTE SITES
SITE ID 336029

NAME: Middletown Dump
ADDRESS: Dolson Avenue
CITY/TOWN: Middletown
OWNER: Middletown Dump

◆ DEC INACTIVE HAZARDOUS WASTE SITES (1)
✸ PARCELS CONTAINING INACTIVE HAZARDOUS WASTE SITES (1)
▪ PARCELS ADJACENT TO (within 1500 feet) SITES (32)

ORANGE COUNTY
CITY OF MIDDLETOWN





NEW YORK STATE DIVISION OF EQUALIZATION & ASSESSMENT
DEC INACTIVE HAZARDOUS WASTE SITES
SITE & ADJACENTS S/B/L REPORT

SITE ID: 336029
SITE NAME: Middletown Dump

SUBJECT PARCELS:

SWIS	SECTION/BLOCK/LOT	ADDRESS	OWNER
330900	49-1-8	159 DOLSON AVE	CITY OF MIDDLETOWN

SITE TOTAL ACRES: 40.4

ADJACENT PARCELS:

SWIS	SECTION/BLOCK/LOT	ADDRESS		OWNER	DISTANCE IN FEET
330900	48-1-1.2	102-128 DOLSON AVE		WULWICK SAMUEL	1478
330900	48-1-4.5	148-152 DOLSON AVE	E	JO-REN COMPANY	1046
330900	48-1-4.6	154-158 DOLSON AVE	E	JO-REN COMPANY	939
330900	48-1-7	160-168 DOLSON AVE		JO-REN COMPANY	982
330900	48-2-1.1	2-20 REPUBLIC PLAZA REAR		HOUSE CAMPBELL S & KATHLEEN	1077
330900	48-2-1.2	22-40 REPUBLIC PLAZA REAR	E	HOUSE CAMPBELL S & KATHLEEN	1115
330900	48-2-2.1	101-105 DOLSON AVE	E	KEY BANK OF SOUTHEASTERN NY	1471
330900	48-2-2.21	107-111 DOLSON AVE	E	WALLACE OIL CO INC	1295
330900	48-2-2.221	113-117 DOLSON AVE		FRANCHISE REALTY INTRSTATE INC	1154
330900	48-2-2.223	119-139 DOLSON AVE/151-155 DOLSON		HOUSE CAMPBELL S & KATHLEEN A	833
330900	48-2-3	26 REPUBLIC PLAZA	E	POLYSAR PLASTICS INC	1331
330900	48-2-6	145 DOLSON AVE		HOUSE CAMPBELL S & KATHLEEN	790
330900	49-1-1.1	167-171 DOLSON AVE		H & G WEBER'S INC	668
330900	49-1-2.1	161-165 DOLSON AVE		BRAUVIN HIGH YIELD FUND LP II	687
330900	49-1-2.21	157 DOLSON AVE		HOUSE CAMPBELL S & KATHLEEN A	633
330900	49-1-3	DOLSON AVEEXT		O & R UTILITIES INC	1279
330900	49-1-6	173-181 DOLSON AVE		QUARTELLO REAL ESTATE MGT INC	1412
330900	49-1-7.1	203-209 DOLSON AVE		MILLIARE MINI MALL INC	1420
330900	49-1-7.42	211-213 DOLSON AVE (SCHOOL)		BD OF ED OF THE ENLARGED CITY	1055
330900	49-1-7.5	203-231 DOLSON AVE REAR		DOLSON AVENUE ASSOCIATES	1120
330900	49-1-9	EAST OF DOLSON AVE		DOLSON AVENUE ASSOCIATES	731
330900	54-1-4	170-176 DOLSON AVE	W	R & S FOODS INC	1023
330900	54-1-17	21-25 WEBB ROAD	E	MDTN OVERLOOK ASSOC	1388
330900	54-1-18.1	204-206 DOLSON AVE		DIMOND RUSSELL & SEGUI SONIA	1475
330900	54-1-18.32	186-202 DOLSON AVE		ORANGE COUNTY CARS INC	1338
330900	54-1-18.5	178-184 DOLSON AVE		ANN'S HOLDING CORP	1228
335600	1-1-1	DOLSONTOWNRD		ORANGE & ROCKLAND	1417
335600	4-1-50.2	DOLSONTOWNRD		CLEMSON BROS INC	1204
335600	6-1-1	DOLSONTOWNRD		MOORE CAROL ANN	1107
335600	6-1-2	DOLSONTOWNRD		WEYMER EARL C	1146
335600	6-1-91	DOLSONTOWNRD		KLINGMAN RICHARD	1139
335600	6-1-92	DOLSONTOWNRD		WEYMER EARL	1249