93rd STREET SCHOOL

NEW YORK STATE SUPERFUND
PHASE I SUMMARY REPORT

FINAL

November 18, 1983

Prepared By:

Recra Research, Inc.
4248 Ridge Lea Road
Amherst, New York 14226

For:

New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

93rd STREET SCHOOL

NEW YORK STATE SUPERFUND

PHASE I SUMMARY REPORT

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1.0 EXECUTIVE SUMMARY

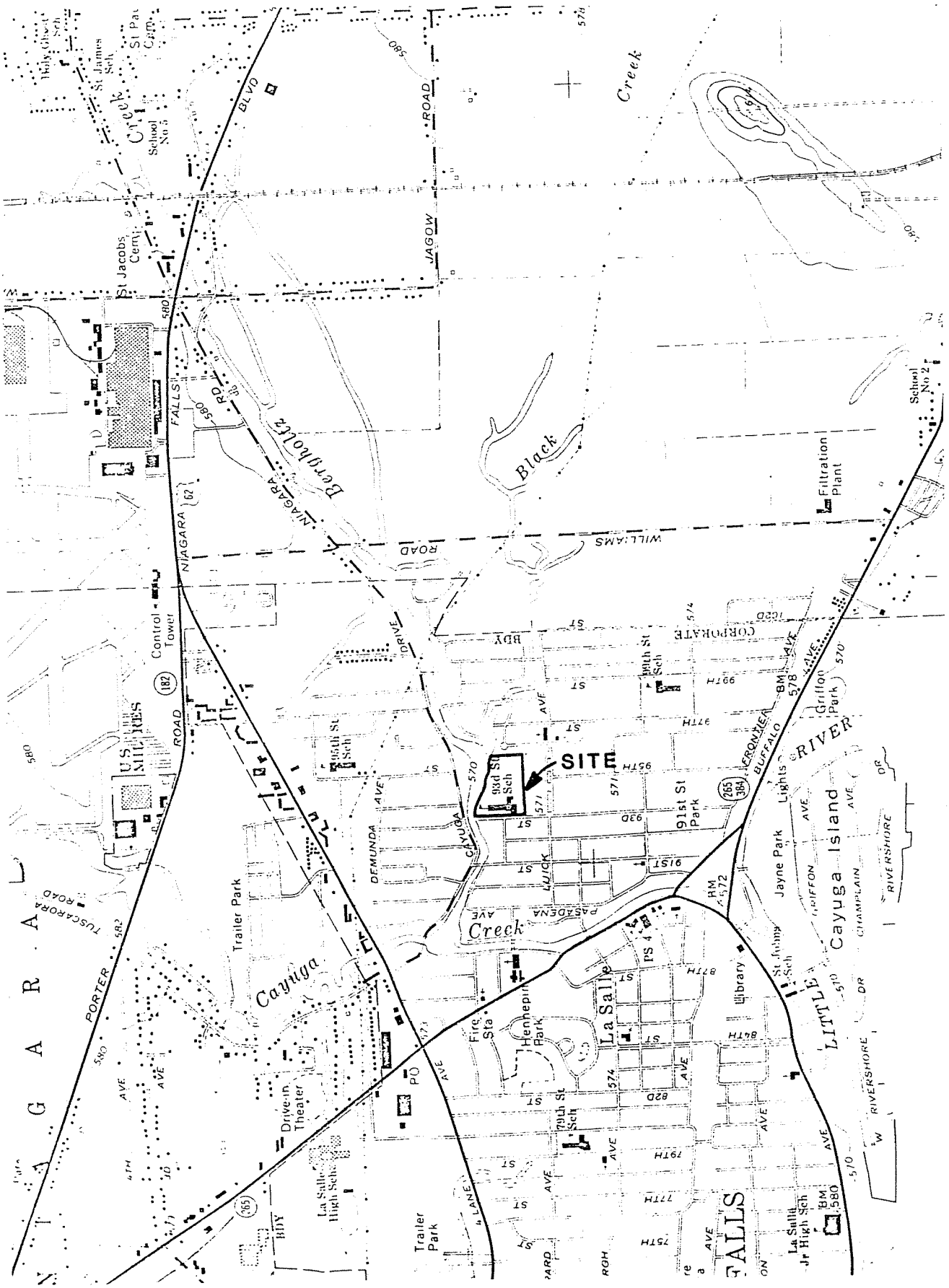
Approximately 3,000 cubic yards of fly ash and BHC cake were used for fill at the 93rd Street School, Niagara Falls, New York in 1954. Tests have shown the presence of benzene, toluene, BHC, dioxin, and lindane in on-site soils and nearby storm sewers, surface waters, and sediments. However, past testing has failed to establish the horizontal extent and thickness of the contaminated fill layer on-site. In addition, the past investigations have not differentiated the effects of off-site contamination caused by the school fill from that attributable to other Love Canal sources. No measures have been taken to cap or seal the site or to provide containment or removal of contaminated soils and waters.

The Phase II work is expected to determine the vertical and horizontal extent of on-site contamination and to better define off-site impacts. Involved in the project will be upstream and downstream water and sediment sampling of Bergholtz Creek as well as storm sewer sampling. A gully which directs surface run-off to Bergholtz Creek will also be included in the surface water/sediment sampling. The subsurface investigation will involve analysis of groundwater from existing wells and of soils of all on-site overburden strata.

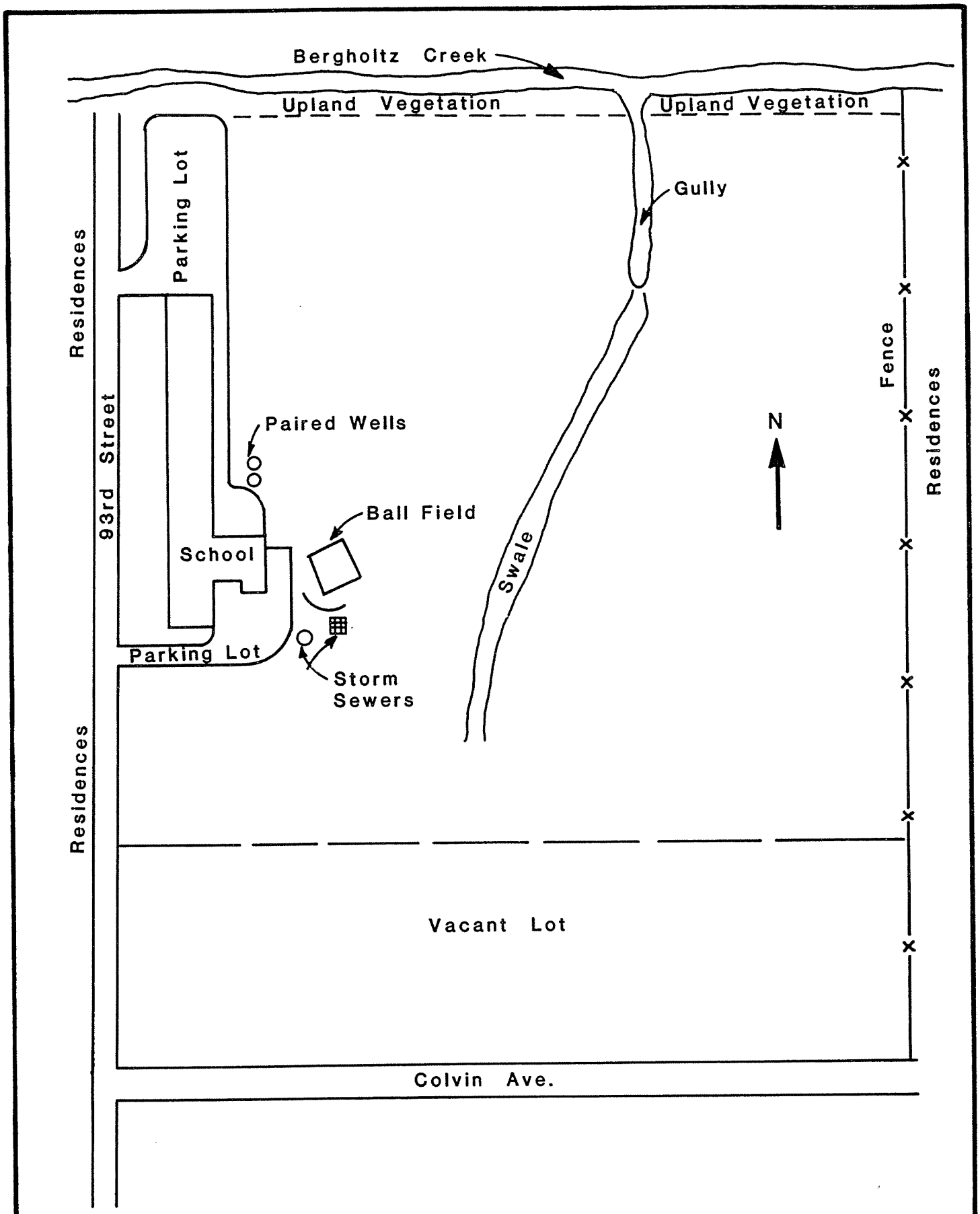
2.0 SITE DESCRIPTION

The 93rd Street School is located within the City of Niagara Falls, Niagara County, New York. The elementary school was closed in 1980 by the City Board of Education. It is hoped that the school will eventually be reopened as part of the "revitalization" of the Love Canal (Ref. 1). In 1954, the Niagara Falls Board of Education contracted to have approximately 3,000 cubic yards of fly ash and BHC cake hauled from the Love Canal to the 93rd Street School for use as fill (Ref. 2). A site location map follows. The school is surrounded by residential areas.

The fill layer appears to be covered by about three feet of topsoil (Ref. 3). The horizontal extent of the fill, as well as the thickness of the layer, is uncertain. No measures have been taken to control infiltration and run-off or provide containment. Bergholtz Creek flows along the northern edge of the property. Bergholtz Creek enters Cayuga Creek, a tributary of the Niagara River, about 0.3 miles west of the site (Ref. 4). The site topography directs surface run-off to Bergholtz Creek. Storm sewers are present in the vicinity of the playground. A field map depicting the general appearance of the site follows. A greater discussion of on-site characteristics is presented in Sections 4 and 5.



USGS Topographical Map Tonawanda, W. N.Y. Quad. 1965	VICINITY MAP 93rd STREET SCHOOL Niagara Falls, N. Y.	Figure 1



Not To Scale	SITE MAP 93rd STREET SCHOOL Niagara Falls N. Y.	Figure 2

3.0 PRELIMINARY HAZARD RANKING SYSTEM SCORE

Facility name: 93rd Street School

Location: Niagara Falls, Niagara County, New York

EPA Region: 2

Person(s) in charge of the facility: Superintendent of Schools, Board of Education Niagara Falls, New York

Name of Reviewer: Recra Research, Inc. Date: June 3, 1983

General description of the facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Closed public school. 3,000 cubic yards of fly ash and BHC cake placed as fill on site in 1954. Analysis of soils and ground waters indicate presence of dioxin, lindane, benzene, and toluene. May be contaminating adjacent storm sewers, Bergholtz Creek, and ground water.

Scores: S_M =32.8 (S_{gw} = 6.12 S_{sw} = 56.36 S_a = 0)

S_{FE} = N/A

S_{DC} = 75.0

Range 32.5 - 53.6

HRS COVER SHEET

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 **(45)**	1	45	45	3.1
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2]					
[2] Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score			0	15	
[3] Containment	0 1 2 3	1	0	3	3.3
[4] Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 **(18)**	1	8	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 **(8)**	1	8	8	
Total Waste Characteristics Score			26	26	
[5] Targets					3.5
Ground Water Use	0 **[1]** 2 3	3	3	9	
Distance to Nearest Well/Population Served	**(0)** 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			3	49	
[6] If line [1] is 45, multiply [1] x [4] x [5]. If line [1] is 0, multiply [2] x [3] x [4] x [5]			3510	57,330	
[7] Divide line [6] by 57,330 and multiply by 100			S_{gw} = 6.12		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 (45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line [4]. If observed release is given a value of 0, proceed to line [2]					
[2] Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score			0	15	
[3] Containment	0 1 2 3	1	0	3	4.3
[4] Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	26	
[5] Targets					4.5
Surface Water Use	0 1 2 (3)	3	9	9	
Distance to a Sensitive Environment	0 (1) 2 3	2	2	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 / 12 16 18 (20) / 24 30 32 35 40	1	20	40	
Total Targets Score			31	55	
[6] If line [1] is 45, multiply [1] x [4] x [5]. If line [1] is 0, multiply [2] x [3] x [4] x [5]			36,270	64,350	
[7] Divide line [6] by 64,350 and multiply by 100			S_{SW} = 56.36		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	[0] 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
Total Targets Score				39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100			S_a = 0		

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	6.12	37.45
Surface Water Route Score (S_{sw})	56.36	3176.45
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3213.9
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		56.69
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		32.77

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Containment	1 3	1		3	7.1
[2] Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
[3] Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
[4] Multiply [1] x [2] x [3]				1,440	
[5] Divide line [4] by 1,440 and multiply by 100			S_{FE} - N/A		

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Incident	(0) 45	1	0	45	8.1
If line [1] is 45, proceed to line [4] If line [1] is 0, proceed to line [2]					
[2] Accessibility	0 1 2 (3)	1	3	3	8.2
[3] Containment	0 [15]	1	15	15	8.3
[4] Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
[5] Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 (5)	4	20	20	
Distance to a Critical Habitat	0 (1) 2 3	4	4	12	
Total Targets Score			24	32	
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]			16,200	21,600	
[7] Divide line [6] by 21,600 and multiply by 100			S_{DC} - 75.0		

FIGURE 12
DIRECT CONTACT WORK SHEET

3.1 Documentation Records for Hazard Ranking System

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: 93rd Street School

LOCATION: City of Niagara Falls, Niagara County, New York

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

BENZENE AND TOLUENE (REF. 7)

Rationale for attributing the contaminants to the facility:

DETECTED IN SAMPLES FROM ON-SITE WELLS, BENZENE AND TOLUENE ALSO DETECTED IN ON-SITE SOILS. (REF. 7)

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

AQUIFER IN FRACTURE ZONE AT TOP OF LOCKPORT DOLOMITE (TOP OF BEDROCK). AQUIFER IN UNCONSOLIDATED DEPOSITS NOT OF REGIONAL IMPORTANCE (REF 6.)

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

30 FEET (REF. 13)

Depth from the ground surface to the lowest point of waste disposal/ storage:

UNKNOWN FILL LAYER OVERLAIN BY APPROXIMATELY 3 FEET OF TOPSOIL (REF. 3)

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

34 INCHES (REF. 14)

Mean annual lake or seasonal evaporation (list months for seasonal):

27 INCHES (REF 14)

Net precipitation (subtract the above figures):

7 INCHES

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

GLACIAL TILL; GLACIO-LACUSTRINE SILTS, CLAYS AND FINE SANDS (REF. 5, 6 & 7)

Permeability associated with soil type:

10^{-7} cm/sec (Ref. 5, 6, & 7)

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

SOLID (REF. 2)

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

NO CONTAINMENT

Method with highest score:

LANDFILL NO LINER

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

BHC, BENZENE, TOLUENE, DIOXIN, LINDANE (REF. 2, 3, 7)

Compound with highest score:

LINDANE - COMBINED TOXICITY & PERSISTENCE SCORE EQUALS 18.

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

3,000 CUBIC YARDS OF FLY ASH AND BHC CAKES. (REF. 2)

Basis of estimating and/or computing waste quantity:

BASED ON DEC SURVEY CONDUCTED ON DISPOSAL SITES IN NEW YORK - INFORMATION PROVIDED BY DEC. ***

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

6 INDUSTRIAL WELLS LOCATED BETWEEN 2½ AND 3 MILES OF SITE. (REF. 6)
DRINKING WATER WELLS LOCATED ON WITMER ROAD, TOWN OF NIAGARA, JUST OUTSIDE OF 3-MILE RADIUS

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

2½ MILES SOUTHWEST OF SITE ALONG BUFFALO AVENUE BETWEEN I-190 AND HYDE PARK BLVD. (REF 6)

Distance to above well or building:

2½ MILES (REF. 6)

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

6 INDUSTRIAL WELLS (REF 6)

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

N/A

Total population served by ground water within a 3-mile radius:

WELLS USED FOR INDUSTRIAL PURPOSES ONLY (REF. 6)

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

LINDANE, BENZENE, BHC (REF 3,7)

Rationale for attributing the contaminants to the facility:

DETECTED IN STORM SEWERS AND BERGHOLTZ CREEK ADJACENT TO SITE, SAME CONTAMINANTS FOUND ON-SITE, HOWEVER, DATA INSUFFICIENT TO DIFFERENTIATE BETWEEN EFFECTS OF 93RD STREET SCHOOL AND * OTHER LOVE CANAL SOURCES

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

$\leq$ 3% FACILITY GENERALLY FLAT BUT LANDSCAPED TO FORM SWALE IN CENTRAL PORTION OF SITE (REF 4,12)

Name/description of nearest downslope surface water:

BERGHOLTZ CREEK (REF 4) ADJACENT TO NORTHERN EDGE OF SITE. CLASS "D" WATER RESOURCE. (REF 8)

Average slope of terrain between facility and above-cited surface water body in percent:

~15% SLOPE (REF. 4, 12)

Is the facility located either totally or partially in surface water?

No

Is the facility completely surrounded by areas of higher elevation?

ENTIRE AREA GENERALLY FLAT (REF 4, 12)

1-Year 24-Hour Rainfall in Inches

2.1 INCHES (REF 14)

Distance to Nearest Downslope Surface Water

BERGHOLTZ CREEK, ADJACENT TO SITE (REF. 4)

Physical State of Waste

SOLID (REF. 2)

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

NONE

Method with highest score:

LANDFILL NOT COVERED AND NO DIVERSION SYSTEM PRESENT

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

SAME AS GROUNDWATER

Compound with highest score:

SAME AS GROUNDWATER

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

SAME AS GROUNDWATER

Basis of estimating and/or computing waste quantity:

SAME AS GROUNDWATER

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

BERGHOLTZ CREEK, CLASS "D" SUITABLE FOR SECONDARY CONTACT RECREATION, CAYUGA CREEK, CLASS "C", SUITABLE FOR ALL USES EXCEPT DRINKING, CULINARY, AND FOOD PROCESSING PURPOSES.

CITY OF NIAGARA FALLS WATER INTAKES APPROXIMATELY 2.6 MILES DOWNSTREAM OF SITE (REF 4, 8 & 9)

Is there tidal influence?

NO

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

CLASS II FRESH WATER WETLANDS 1/2 MILE TO NORTHWEST OF SITE (REF. 11)

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

NONE

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

CITY OF NIAGARA FALLS INTAKES APPROXIMATELY 3 MILES DOWNSTREAM OF SITE (REF 4) POPULATION SERVED, APPROXIMATEY 71,000 PEOPLE. (REF 15)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

N/A

Total population served:

~ 71,000 PEOPLE

Name/description of nearest of above water bodies:

NIAGARA RIVER APPROXIMATELY .7 MILES SOUTH OF SITE. BERGHOLTZ & CAYUGA CREEKS ARE TRIBUTARIES OF NIAGARA RIVER

Distance to above-cited intakes, measured in stream miles.

APPROXIMATELY 3.4 MILES (REF 4)

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

NO ON-SITE DATA. AIR TESTING OF RESIDENCES EAST OF SITE CONTAMINATION PROBABLY DERIVED FROM OTHER LOVE CANAL SOURCES. (REF 7)

Date and location of detection of contaminants

N/A

Methods used to detect the contaminants:

N/A

Rationale for attributing the contaminants to the site:

N/A

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

N/A

Most incompatible pair of compounds:

N/A

Toxicity

Most toxic compound:

N/A

Hazardous Waste Quantity

Total quantity of hazardous waste:

N/A

Basis of estimating and/or computing waste quantity:

N/A

* * *

3 TARGETS

Population Within 4-Mile Radius

ıed:

Circle radius used, give population, and indicate how det

mi

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 tc

N/A

Distance to a Sensitive Environment

ess:

Distance to 5-acre (minimum) coastal wetland, if 2 miles

N/A

less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mi

N/A

Distance to critical habitat of an endangered species, if 1 mile or less:

N/A

Land Use

Distance to commercial/industrial area, if 1 mile or less:

N/A

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

N/A

Distance to residential area, if 2 miles or less:

N/A

Distance to agricultural land in production within past 5 years, if 1 mile or less:

N/A

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

N/A

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	932078

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
93RD STREET SCHOOL					
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
NIAGARA FALLS	NY	14301	NIAGARA		
09 COORDINATES LATITUDE	**LONGITUDE**				
43° 05' 15.0"	079° 57' 14.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)
EAST SIDE OF 93RD STREET AT NORTHERN END OF STREET

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
NIAGARA FALLS BOARD OF EDUCATION	607 WALNUT AVE.		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
NIAGARA FALLS	NY	14301	(716) 278-5613
07 OPERATOR (If known and different from owner)	**08 STREET (Business, mailing, residential)**		
SAME			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**
			( )

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☑ YES DATE 6 3 83 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☑ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): RECRA RESEARCH, INC.

02 SITE STATUS (Check one)	03 YEARS OF OPERATION		
☐ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN	1954 (BEGINNING YEAR)	1954 (ENDING YEAR)	☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
FLY ASH POSSIBLY CONTAMINATED WITH DIOXIN, AND BHC CAKE

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
NO CONTAINMENT, NO MEASURES TAKEN TO CONTROL INFILTRATION OF GROUNDWATER OR SURFACE WATER RUN-OFF. POSSIBLE SURFACE WATER AND GROUNDWATER CONTAMINATION, POSSIBLE EXPOSURE TO PUBLIC OF CHEMICALS ON-SITE

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☑ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
RICHARD L. CROUCH	RECRA RESEARCH, INC		(716) 838-6200
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
KEVIN OWEN		RECRA RESEARCH	SAME	6 3 83 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☑ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER _____ (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS 3,000

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			BENZENE, TOLUENE, LINDANE
PSD	PESTICIDES			DIOXIN + BHC DETECTED
OCC	OTHER ORGANIC CHEMICALS			ON SITE
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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 CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

REF. 2, 3 & 7

2- KNOWLES, G.D. AND TRAMANTANO, R., "NYSDEC HAZARDOUS WASTES DISPOSAL SITE REPORT" 4/16/80

3- NYSDOH "LOVE CANAL A SPECIAL REPORT TO GOVERNOR & LEGISLATURE" 4/81

7- USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL, V.1 (EPA-600/4-82-030a) & V.II (EPA-600/4-82-030b)", MAY 1982

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 9-32-078

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
02 ☑ OBSERVED (DATE: 5/82) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
TRACES OF BENZENE & TOLUENE DETECTED IN ON-SITE GROUNDWATER ONLY INDUSTRIAL WELLS LOCATED WITHIN 3 MILES OF SITE. (REF. 7, 6)

01 ☐ B. SURFACE WATER CONTAMINATION
02 ☐ OBSERVED (DATE: _____) ☑ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: >70,000
04 NARRATIVE DESCRIPTION
LINDANE, BENZENE & BHC DETECTED IN ADJACENT STORM SEWERS AND BERGHOLTZ CREEK. EFFECT OF OTHER LOVE CANAL SOURCES NOT SCREENED OUT. NIAGARA FALLS WATER INTAKES < 3 MILES DOWNSTREAM OF SITE (REF 3, 7, 4)

01 ☐ C. CONTAMINATION OF AIR
02 ☐ OBSERVED (DATE: _____) ☑ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
BENZENE & TOLUENE VOLATILE + CONTAMINATED FILL LAYER OVERLAIN BY TOP SOIL, VOLITALIZATION IS POSSIBLE

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
UNKNOWN

01 ☐ E. DIRECT CONTACT
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 5,000
04 NARRATIVE DESCRIPTION
CONTAMINATED FILL OVERLAIN BY TOP SOIL, EXPOSURE TO PEOPLE USING SCHOOL YARD POSSIBLE. LINDANE, BHC, BENZENE AND DIOXIN DETECTED IN SOILS. ESTIMATED POPULATION WITIN ONE MILE RADIUS

01 ☐ F. CONTAMINATION OF SOIL
02 ☑ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres)
04 NARRATIVE DESCRIPTION
SOIL FOUND TO CONTAIN BENZENE, LINDANE, DIOXIN, BHC (REF. 2, 3 & 7)

01 ☐ G DRINKING WATER CONTAMINATION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 70,000
04 NARRATIVE DESCRIPTION
CITY OF NIAGARA FALLS WATER INTAKES WITIN 3 MILE DISTANCE DOWNSTREAM OF SITE (REF 4)

01 ☐ H. WORKER EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
UNKNOWN, EXPOSURE POSSIBLE FOR ON-SITE WORKERS

01 ☐ I. POPULATION EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION
UNKNOWN

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 9-32-078

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
UNKNOWN

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
UNKNOWN

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
UNKNOWN

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff-standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
NO CONTAINMENT

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
UNKNOWN

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
BHC AND DIOXIN DETECTED IN STORM SEWERS (REF 3+7)
LINDANE DETECTED IN STORM SEWERS ADJACENT TO SITE (REF 3)

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
—

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS
—

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

F. 2 - KNOWLES & TRAMONTANO, NYSDEC HAZARDOUS WASTE DISPOSAL SITE REPORT, 4/16/80.
5 - NYSDOH "LOVE CANAL - A SPECIAL REPORT TO THE GOVERNOR & LEGISLATURE, APRIL 1981
9 - USGS TOPOGRAPHIC MAP, TONAWANDA WEST, NY QUADRANGLE 1965
6 - JOHNSON, R.H., "GROUNDWATER IN THE NIAGARA FALLS AREA, N.Y." NY Water Res Com. Bull. 6-W-53, 1964
7 - USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL, V. I (EPA-600/4-82-030a) & V. II (EPA-600/4-82-030b)" MAY 1982

EPA FORM 2070-12 (7-81)

3.3 EPA SITE INSPECTION REPORT (FORM 2070-13)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
93RD STREET SCHOOL	93RD STREET				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
NIAGARA FALLS	NY	1430	NIAGARA		

09 COORDINATES — LATITUDE 43° 05' 15.0" | LONGITUDE 079° 57' 14.0"

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	02 SITE STATUS	03 YEARS OF OPERATION
6, 3, 83 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1954 (BEGINNING YEAR) 1954 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☑ F. STATE CONTRACTOR RECRA RESEARCH (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
KEVIN OWEN	ENVIRONMENTAL SPECIALIST	RECRA RESEARCH	(716) 838-6200

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
NONE			( )
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
DR. REED H. HAGEN	SUPERINDENDENT OF SCHOOLS	607 WALNUT AVE NIAGARA FALLS, NY	(716) 278-5613
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☑ PERMISSION ☐ WARRANT	10:00 AM	SUNNY / WARM

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
RICHARD L. CROUCH	RECRA RESEARCH INC	(716) 838-6200

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
KEVIN OWEN		RECRA		06, 03, 83 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS
CUBIC YARDS 3,000
NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			BENZENE, TOLUENE, LINDANE
PSD	PESTICIDES			DIOXIN AND BHC
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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 CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

REF. 2,3,7

2 - KNOWLES & TRAMONTANO, "NYSDEC HAZARDOUS WASTE DISPOSAL SITE REPORT" 4/16/80

3 - NYS DOH "LOVE CANAL A SPECIAL REPORT TO THE GOVERNOR AND LEGISLATURE", APRIL 1981

7 - USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL, VOL I (EPA-600/4-82-030) AND V. II (EPA-600/4-82-030b)" MAY 1982

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

SEE PRELIMINARY ASSESSMENT

01 ☐ B. SURFACE WATER CONTAMINATION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

SEE PRELIMINARY ASSESSMENT

01 ☐ C. CONTAMINATION OF AIR
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

//

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

//

01 ☐ E. DIRECT CONTACT
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

//

01 ☐ F. CONTAMINATION OF SOIL
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres)
04 NARRATIVE DESCRIPTION

//

01 ☐ G. DRINKING WATER CONTAMINATION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

//

01 ☐ H. WORKER EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

//

01 ☐ I. POPULATION EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

//

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NONE OBSERVED

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

NONE OBSERVED

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

SEE PRELIMINARY ASSESSMENT

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

//

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

//

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

NONE OBSERVED

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

GULLY OBSERVED CONDUCTING SURFACE RUN-OFF TO BERGHOLZ CREEK, STORM SEWERS LOCATED IN PLAYGROUND NEAR BALLFIELD
EPA MONITORING WELLS PRESENT & PRESUMABLY USABLE

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

2- KNOWLES & RAMONTAND, "NYSDEC HAZARDOUS WASTE DISPOSAL SITE REPORT" 4/16/80
4- USGS TOPOGRAPHIC MAP, TONAWANDA WEST, NY QUADRANGLE 1965
6- JOHNSON, R.H., "GROUNDWATER IN THE NIAGARA FALLS AREA, NY" NY WATER RES. COM. BULL 6-W-53-196
7- USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL, V.I (EPA-600/4-82-030a) & V.II (EPA-600/4-82-030b")

EPA FORM 2070-13 (7-81)

MAY 1982

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. PERMIT INFORMATION N/A

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)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE, DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	3,000	Cubic yds.
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)
- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER
- ☐ A. BUILDINGS ON SITE

06 AREA OF SITE
N/D (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
☒ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
LAYER OF TOPSOIL OVER FILL, NO CONTAINMENT, NO MEASURES TAKEN TO PROVIDE FOR SURFACE RUN-OFF CONTROL OR TO PREVENT PERCOLATION OF CONTAMINATES TO GROUNDWATER

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☒ YES ☐ NO
02 COMMENTS
SCHOOL GROUNDS ACCESSIBLE TO PUBLIC

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

(REF 2, 3, 7)
2 - KNOWLES AND TRAMONTANO "NYSDEC HAZARDOUS WASTE DISPOSAL SITE REPORT" 4/16/82
3 - NYSDOH "LOVE CANAL - A SPECIAL REPORT TO THE GOVERNOR AND LEGISLATURE, APRIL 1981
7 - USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL. VI (EPA-600/4-82-030c) & VII (EPA-600-82-030", 5/1982

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY *(Check as applicable)*

	SURFACE	WELL
COMMUNITY	A. ☑	B. ☐
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. _____ (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, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER INDUSTRY

03 DISTANCE TO NEAREST DRINKING WATER WELL N/A (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
<10 (ft)	SOUTH	20 (ft)	VARIABLE (gpd)	☐ YES ☑ NO

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

INDUSTRIAL WELLS USED TO PROVIDE PROCESS WATERS

10 RECHARGE AREA

☑ YES ☐ NO

COMMENTS: BEDROCK AQUIFER RECHARGES VIA INFILTRATION FROM OVERLYING DEPOSITS

11 DISCHARGE AREA

☑ YES ☐ NO

COMMENTS: POSSIBLE DISCHARGE TO BERGHOLTZ CREEK, BEDROCK AQUIFER DISCHARGES TO NIAGARA RIVERS

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	DISTANCE TO SITE
BERGHOLTZ CREEK	☐	Adjacent (mi)
CAYUGA CREEK	☐	_____ (mi)
NIAGARA RIVER	☐	_____ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. _____ NO. OF PERSONS	B. _____ NO. OF PERSONS	C. >70,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

RESIDENCES ADJACENT TO SITE (mi)

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

_____

04 DISTANCE TO NEAREST OFF-SITE BUILDING

30 (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)*

SCHOOL LOCATED IN A RESIDENTIAL SECTION OF NIAGARA RIVER

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: 9-32-078

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☑ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ 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 ($10^{-4} - 10^{-6}$ cm/sec) ☑ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
20 (ft)	UNKNOWN (ft)		

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
7 (in)	2.1 (in)	< 3 %	NORTH	< 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: A. _____ (mi) OTHER: B. ½ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL: A. _____ (mi)

RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES: B. RESIDENTIAL ADJACENT (mi)

AGRICULTURAL LANDS: PRIME AG LAND C. _____ (mi) AG LAND D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

TOPOGRAPHY IN AREA GENERALLY FLAT LYING. ON THE NORTHERN EDGE OF THE SITE THERE IS A 5 TO 10 FOOT DROP TO BERGHOLTZ CREEK WITH A SLOPE OF ABOUT 16%. SCHOOL GROUNDS HAVE APPARENTLY BEEN LANDSCAPED TO DIRECT RUN-OFF TOWARDS BERGHOLTZ CREEK

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

4 - USGS TOPOGRAPHIC MAP, TONAWANDA WEST QUADRANGLE. NY RG5

10 - NIAGARA FALLS DEPT. OF PLANNING & DEVELOPMENT "ZONING MAP OF NIAGARA FALLS" 2/2/70

11 - BATCHELLER, G., NYSDEC, REG. 9, TELEPHONE CONVERSATION 6/1/83

14 - US DEPT OF COMMERCE, NAT'L CLIMATIC CENTER. "CLIMATIC ATLAS OF THE U.S.) 1979

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER		REF. 7	
SURFACE WATER		REF 3 & 7	
WASTE		REF. 3	
AIR		REF. 7	
RUNOFF			
SPILL			
SOIL		REF 2, 3 & 7	
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☐ GROUND ☐ AERIAL

02 IN CUSTODY OF _____ (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS REF. 3 & 4

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

2- KNOWLES + TRAMONTANO, "NYSDEC HAZARDOUS WASTE DISPOSAL SITE REPORT" 4/16/80

3- NYSDOH "LOVE CANAL - A SPECIAL REPORT TO THE GOVERNOR & LEGISLATURE" APRIL 1981

4- USGS TOPO MAP, TONAWANDA WEST, NY, QUADRANGLE 1965

7- USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL. V. I (EPA-600/4-82-030a) & VII (EPA-600/4-82-030b)" MAY 1982

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
NIAGARA FALLS BOARD OF EDUCATION		607 WALNUT AVE.		NIAGARA FALLS	NY	

PARENT COMPANY (If applicable)

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

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

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

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

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC 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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II. CURRENT OPERATOR *(Provide if different from owner)*

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

OPERATOR'S PARENT COMPANY *(If applicable)*

10 NAME	11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**13 SIC CODE**
14 CITY	**15 STATE** / **16 ZIP CODE**

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

01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**04 SIC CODE**
05 CITY	**06 STATE** / **07 ZIP CODE**
08 YEARS OF OPERATION	**09 NAME OF OWNER DURING THIS PERIOD**

PREVIOUS OPERATORS' PARENT COMPANIES *(If applicable)*

10 NAME	11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**13 SIC CODE**
14 CITY	**15 STATE** / **16 ZIP CODE**

01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**04 SIC CODE**
05 CITY	**06 STATE** / **07 ZIP CODE**
08 YEARS OF OPERATION	**09 NAME OF OWNER DURING THIS PERIOD**

10 NAME	11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**13 SIC CODE**
14 CITY	**15 STATE** / **16 ZIP CODE**

01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**04 SIC CODE**
05 CITY	**06 STATE** / **07 ZIP CODE**
08 YEARS OF OPERATION	**09 NAME OF OWNER DURING THIS PERIOD**
1954	NIAGARA FALLS BOARD OF EDUCATION

10 NAME	11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**13 SIC CODE**
14 CITY	**15 STATE** / **16 ZIP CODE**

01 NAME	02 D+B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**04 SIC CODE**
05 CITY	**06 STATE** / **07 ZIP CODE**
08 YEARS OF OPERATION	**09 NAME OF OWNER DURING THIS PERIOD**

10 NAME	11 D+B NUMBER
12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	**13 SIC CODE**
14 CITY	**15 STATE** / **16 ZIP CODE**

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

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II. ON-SITE GENERATOR

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

III. OFF-SITE GENERATOR(S)

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

IV. TRANSPORTER(S)

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)

NOTE: 3000 CUBIC YARDS OF FLY ASH AND BHC CAKE FROM LOVE CANAL USED AS FILL AT 93RD STREET SCHOOL. (REF. 2)

2 - KNOWLES + TRAMONTANO, "NYDEC HAZARDOUS WASTE DISPOSAL SITES REPORT" 4-16-80

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	9-32-078

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

NO ACTION OF THIS NATURE TAKEN

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION — NO ACTION OF THIS NATURE TAKEN

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION — LAYER OF TOPSOIL COVERS WASTES (REF 2, 3, 7)

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION — ~~NO~~ N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION — NO ACTION OF THIS NATURE TAKEN

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

—

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

2- KNOWLES + TRAMONTANO "NYS DEC HAZARDOUS WASTE DISPOSAL SITE REPORT" 4-16-82
3- NYSDOH "LOVE CANAL- A SPECIAL REPORT TO THE GOVERNOR + LEGISLATURE - 4/81
7- USEPA "ENVIRONMENTAL MONITORING AT LOVE CANAL, V.I (EPA-600/4-82-030a) and V. II (EPA-600/4-82-030b)' MAY 1982

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	9-32-078

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☑ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

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

4.0 SITE HISTORY

In 1954, approximately 3,000 cubic yards of fly ash and BHC cake were placed as fill at the 93rd Street School. The material was excavated from the Love Canal. The fill was subsequently covered with top soil and seeded. The topsoil is currently about 3 feet thick. The horizontal extent and thickness of the fill layer is uncertain (Ref. 1, Ref. 2, Ref. 3). No measures have been taken to control infiltration and run-off or provide containment.

5.0 SITE DATA

5.1 Site Area Surface Features

5.1.1 Topography and Drainage - The site is generally flat but appears to have been landscaped to direct surface runoff towards Bergholtz Creek. The site slopes gently from the east and west to create a swale in the central portion of the site. The swale terminates at its northern end in a small gully that discharges to Bergholtz Creek. Two inlets to storm sewers were observed south of the ball field near the parking lots. These storm sewers apparently discharge to Bergholtz Creek north of the school, although the actual lines were not traced.

Bergholtz Creek is classified as a Class "D" water. Cayuga Creek is classified as a Class "C" water. Cayuga Creek enters the Niagara River about one mile south of the confluence of Bergholtz and Cayuga Creek. The Niagara River is classified as a Class "A-Special" (International Boundary) water. The best usage of Class "D" waters are for secondary contact recreation. Accordingly, the water conditions must be suitable for fish survival. Class "C" waters are considered suitable for all uses

except drinking, culinary or food processing purposes, and primary contact recreation. Class "A-Special" waters are used as sources of water for drinking, culinary or food processing purposes, primary contact recreation, and other usages (Ref. 8, Ref. 9).

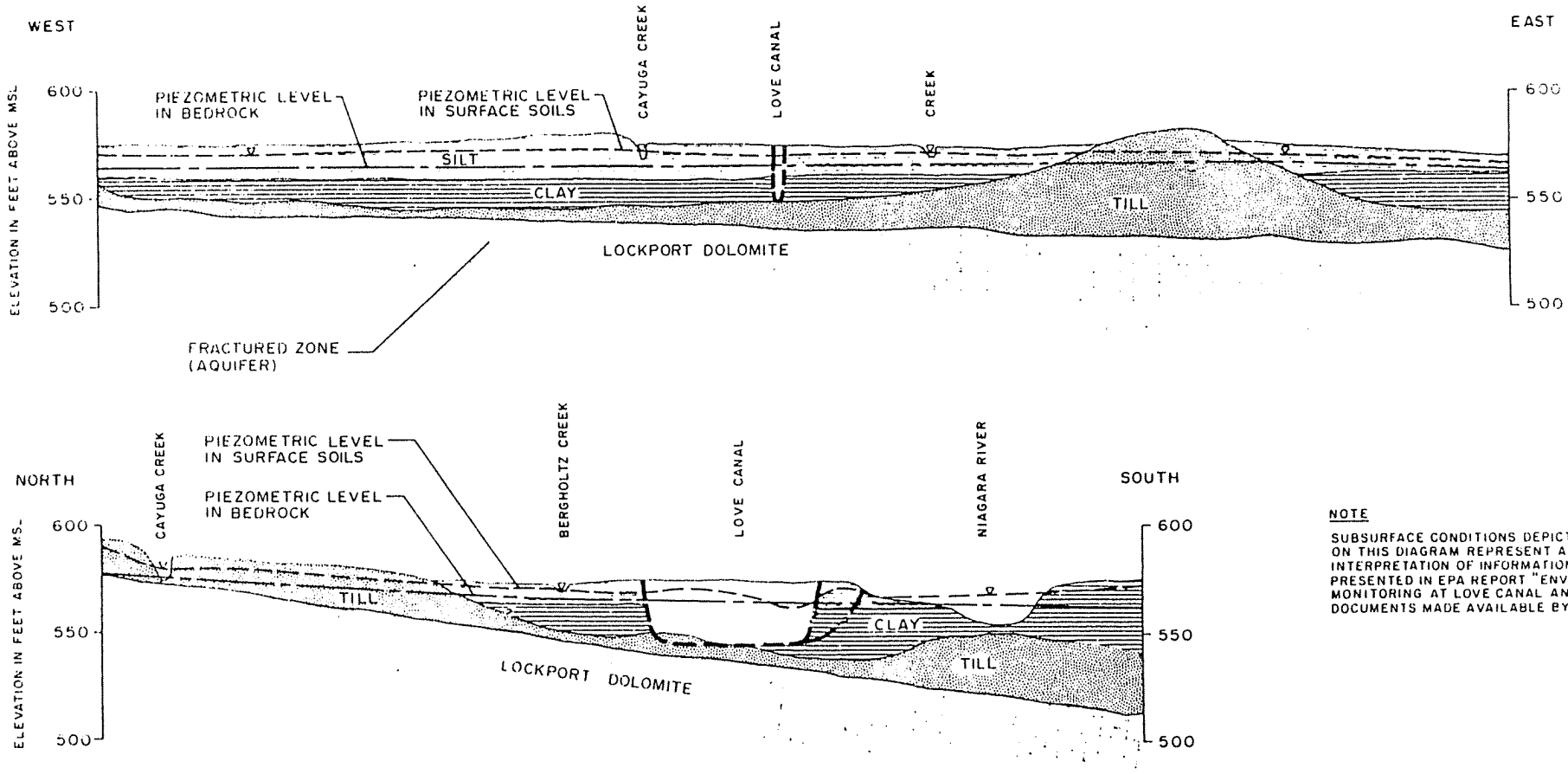
The water intakes of the Niagara Falls water treatment plant are approximately 2.6 miles from the site. These intakes are the only surface water intakes for drinking water located within three miles of the site (Ref. 4).

5.1.2 Environmental Setting - The 93rd Street School is located in a predominately residential section of Niagara Falls (Ref. 10, Ref. 14, Ref. 15). Bergholtz Creek flows along the northern edge of the site (Ref. 4). The northern portion of the site is in the 100 year floodplain of the creek. There are no critical habitats of endangered species in the vicinity of the site. A Class II freshwater wetlands is located about one-half mile southeast of the school property. A second wetland has been tentatively identified about one mile to the northwest of the site. Field investigations are needed to verify and classify the second wetland (Ref. 11).

There are very few areas offering wildlife habitat value in the vicinity of the 93rd Street School. The school site is regularly maintained and the entire grounds are mowed. A vacant lot with tall weeds and a few scattered trees is south of schoolgrounds. A narrow band of upland trees and vegetation separates the schoolyard from Bergholtz Creek on the north. Wetland vegetation, including a willow tree, is found in the gully running from the site into Bergholtz Creek. In all other areas, including north of Bergholtz Creek, residences are found (Ref. 12).

5.2 Site Hydrogeology

5.2.1 Geology - The Lockport Dolomite, which is of Silurian Age, forms the bedrock beneath the site (Ref. 5, Ref. 6, Ref. 7). The Lockport Formation is composed almost entirely of dolomite, a slightly soluble calcium magnesium carbonate. However, a relatively thin section of limestone is encountered near the base of the formation. The Lockport Dolomite reaches a thickness of about 150 feet. The formation dips gently in a southerly direction at a rate of approximately 30 feet per mile. (Figure 3)



NOTE

SUBSURFACE CONDITIONS DEPICTED ON THIS DIAGRAM REPRESENT AN INTERPRETATION OF INFORMATION PRESENTED IN EPA REPORT "ENVIRONMENTAL MONITORING AT LOVE CANAL AND OTHER DOCUMENTS MADE AVAILABLE BY NYSDEC.

Figure 3
(REF. 13)

EAST-WEST AND NORTH-SOUTH GEOLOGIC PROFILES OF THE LOVE CANAL AREA AND VICINITY
LOVE CANAL REMEDIAL PROJECT (TASK V)

E.C. JORDAN CO.

5.2.2 Soils - The Silurian Age bedrock is unconformably overlain by unconsolidated Pleistocene deposits. The overburden generally varies from 20 to 45 feet in thickness in the area of the site. Deposits of glacial till overlain by clay, silt, and fine sand layers form the general surficial geology. Area geologic profiles are provided. On the 93rd Street School, the fill layer, originating from Love Canal material, and topsoil have been placed on top of the natural overburden (Ref. 3, Ref. 5, Ref. 6, Ref. 7, Ref. 13). Permeabilities in the glacial till and the clay, silt, and fine sands deposit can reach as low as 10^{-7} cm/sec (Ref. 5, Ref. 6, Ref. 7).

5.2.3 Groundwater - As depicted in the geologic profiles, groundwater occurs both in the bedrock and the unconsolidated deposits. Groundwater in the Lockport Dolomite occurs in three types of openings. These openings are the horizontal bedding joints, vertical joints, and dissolution cavities. The bedding joints form at least seven important water bearing zones. These zones are surrounded, and separated, by essentially impermeable rock. Recharge appears to occur at outcrops of the bedding joints. Downward migration of water through vertical joints in the bedrock appears to play a minor, or no

role in the recharging of the lower water bearing zones (Ref. 6, Ref. 13).

A moderately permeable zone exists in the upper ten to fifteen feet of Lockport Dolomite. This zone is characterized by extensive vertical jointing, bedding joints widened by the solution of the dolomite, and cavities formed by the solution of gypsum pockets. Water in this aquifer is recharged by the downward infiltration of water through the overlying unconsolidated deposits, as well as at outcrops (Ref 6). Water in this uppermost bedrock aquifer flows in a generally southerly direction with eventual discharge to the Niagara River (Ref. 6, Ref. 7).

Due to the low permeability of the natural overburden material, the unconsolidated deposits are not important sources of groundwater (Ref. 7). The hydrologic conditions of the surficial sediments at the 93rd Street School have not been adequately defined. Groundwater from these deposits may discharge to Bergholtz Creek or percolate to the uppermost bedrock aquifer with eventual discharge to the Niagara River. As depicted in the attached geologic profiles, the piezometric surface of both

the overburden and uppermost bedrock aquifers are within about ten feet of the ground surface (Ref. 13).

There are no known drinking water wells in the vicinity of the school. Area residents receive water supplied by the water departments of the City of Niagara Falls, the Towns of Niagara and Wheatfield, and Niagara County. Although there are a number of industrial wells in the City of Niagara Falls, no wells are closer than 2.6 miles to the 93rd Street School (Ref. 6).

5.3 Previous Sampling and Analysis

5.3.1 Groundwater Quality Data - Some data on groundwater quality was obtained during the U.S. Environmental Protection Agency's (EPA) investigation of Love Canal (Ref. 7). Groundwater at the school was found to contain traces of benzene (not exceeding 20 ug/l) and toluene (not exceeding 25 ug/l). These contaminants were detected in samples from both the bedrock and the overburden. Monitoring wells installed as part of the EPA study are still in existence and presumably usable (Ref. 12).

5.3.2 Surface Water Quality Data - Lindane, in concentrations varying from 15 to 97 ug/l, was detected in storm sewers on 93rd Street, adjacent to the school (Ref. 3). In addition, traces of benzene and gamma - BHC were measured in Bergholtz Creek. However, the levels of these contaminants were similar (or greater) in samples upstream of the site (Ref. 7).

5.3.3 Air Quality Data - Benzene was detected in residences east of the school. Values ranged from 6.6 ug/m^3 outside the houses, to 7.2 ug/m^3 inside the houses, and 8.7 ug/m^3 in the basement. However, like the surface water data, the testing does not screen the impacts of the 93rd Street School from other Love Canal sources (Ref. 7).

5.3.4 Other Analytical Data - Soil samples from the 93rd Street School have been analyzed. Low-level lindane contamination was detected in the fly ash fill layer. The fly ash was also found to contain 380 parts per trillion (ppt) of dioxin (Ref. 3). Core samples from the upper six inches of sediments contained cadmium ranging from 1200-1700 ug/kg. Traces of benzene (not exceeding 25 ug/kg) were also found in soil from the school grounds. In the same

samples, no gamma - BHC contamination was detected (Ref. 7). In samples obtained from the homeplate area of the school's ballfield, hexachloracyclohexane contamination was found (Ref. 3). Contamination of school soils by trichlorobenzene and tetrachlorobenzene has been reported by NYSDEC (Ref. 2).

Sediments in the storm sewers adjacent to the school and in Bergholtz Creek have been tested. Benzene, toluene, and gamma - BHC have been detected in sediments in Bergholtz Creek near the site. However, the levels did not exceed concentrations measured in upstream samples (Ref. 7). Gamma - BHC, with a concentration of 79 ug/kg, was detected in sediment in a storm sewer on 93rd Street (Ref. 7). Sediment in a storm sewer discharging from the school area into Bergholtz Creek was found to contain 29 ppb of dioxin (Ref. 3).

6.0 ADEQUACY OF AVAILABLE DATA

In compiling the Hazard Ranking Score, the 93rd Street School was found to have a score for Sm equal to 25.3. However, because some route rating factors involve a certain degree of subjectivity due to data inadequacies, a range for the Sm score was developed and found to be 25 to 30. These data inadequacies are as follows:

- The horizontal extent and thickness of the fill layer has not been established for the entire site.

- The thickness (i.e. total volume) of top soil overlying the fill layer over the entire site is uncertain.

- The impact of contaminants on groundwater quality in the bedrock aquifer has not been determined.

- The effect of contamination from the 93rd Street School fill on water and sediments in Bergholtz Creek and adjacent storm sewers has not been differentiated from impacts arising from other Love Canal sources.

- The possible, direct exposure, effects on people using the school grounds are uncertain.

7.0 PHASE II WORK PLAN

7.1 Objectives

As per the inadequacies of the data base that were itemized in the preceding section, a work plan has been developed which, to the extent practical, will provide the information required to address the following list:

- Potential environmental effects of the landfill.
- The extent and magnitude of contamination, based on site specific hydrogeologic conditions.
- The data inputs necessary to effectuate the development and recommendation of cost effective remedial actions.

Detailed descriptions of the elements of this work plan are herein provided.

7.2 Preliminary Field Investigation

The primary purpose of this work element is to fill the data gaps identified in the preliminary assessment, so as to permit a complete site characterization/ranking (HRS) and engineering evaluation of remedial alternatives. The preliminary field investigation includes the following items:

- o Air Monitoring
- o Subsurface Investigation
- o Surface Water and Sediment Testing

Throughout the investigative effort, field activities will be performed in strict accordance with established safety protocol, presented in Recra Research Inc.'s Operation Manual -- Field and Analytical Services (previously submitted to NYSDEC by Recra as part of a prequalifying submission).

7.2.1 Air Monitoring - Prior to implementation of the various field investigative techniques associated with this element, an initial site screening will be conducted using a Century Organic Vapor Analyzer (OVA) and/or an HNU photoionizer. Based upon described site characteristics, Recra team personnel engaged in this activity will enter the site equipped with Level 3 respiratory protection. A grid pattern will be established at the site and readings taken and recorded at each grid point. This survey will determine the initial level of protection necessary for workers' safety. In addition, upgradient and downgradient air monitoring stations will be established. If the results are indicative of air quality problems, additional

testing will be initiated at specified distances away from the site.

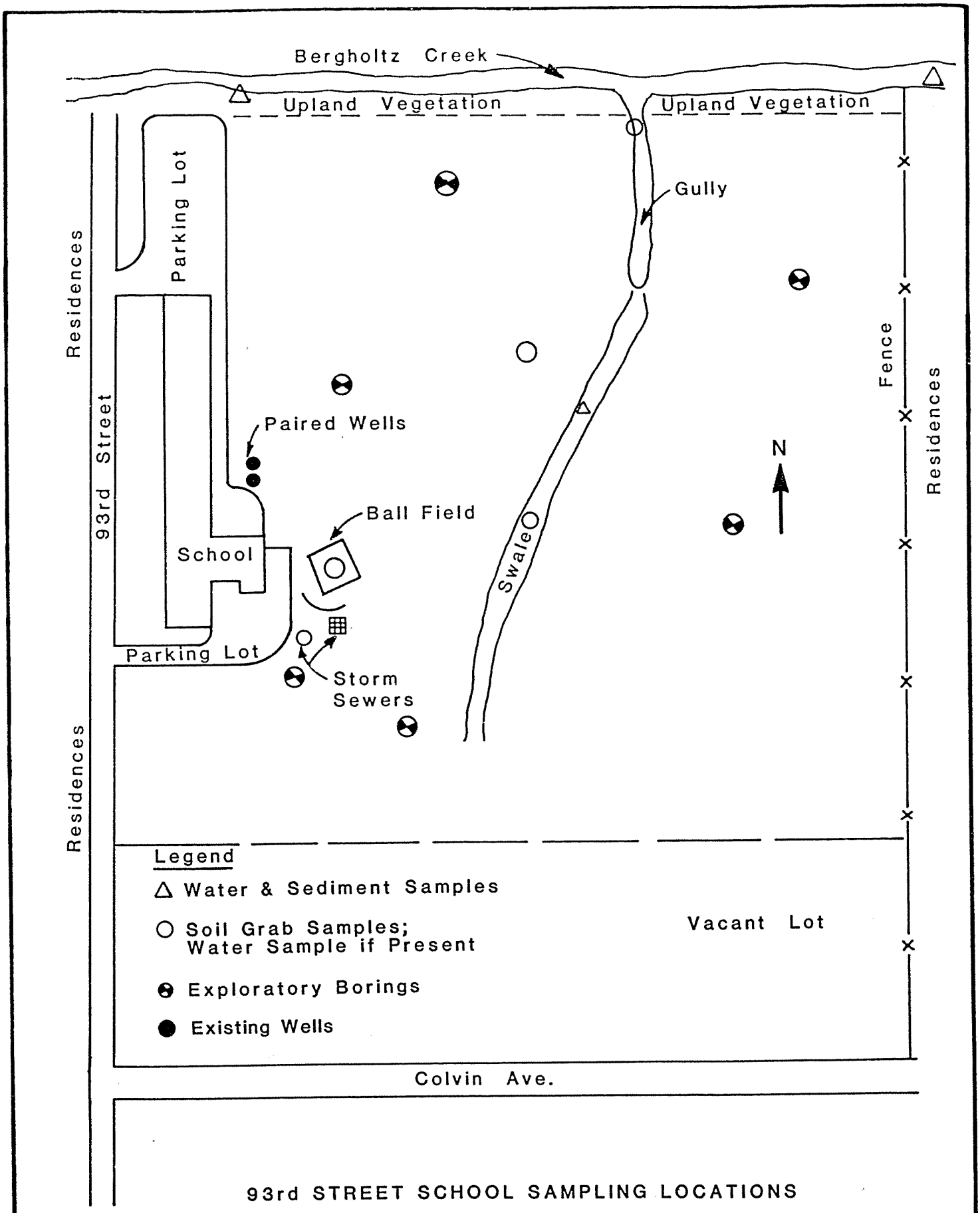
During actual field investigative work, ambient and worker air monitoring will be conducted periodically using appropriate instrumentation, such as the photoinoizer and/or OVA. When deemed necessary from actual readings, the level of respiratory protection will be adjusted to meet existing conditions. All disposable equipment necessary for worker safety will be placed daily into covered on-site drums provided by Recra, and removed from the site and disposed of either upon reaching full capacity or upon completion of all field work.

7.2.2 Subsurface Investigation - To the extent possible, monitoring wells already in existence will be used. During the site visit one pair of monitoring wells were located. Possibly up to three more pairs of wells are located on, or in close proximity to the school property (Ref. 7). Attempts will be made to secure the boring logs for these and any other wells and/or exploratory drillings made in the vicinity of the site. Permission will be sought from the U.S. Environmental Protection Agency (and other responsible parties) to sample the existing monitoring

wells. At this time, the installation of new monitoring wells is not considered necessary.

To determine the horizontal and vertical extent of soil contamination, Four (4) shallow test borings with continuous split spoon sampling will be installed at locations shown on the accompanying site map. Each will have a carbon steel monitoring well emplaced screen above the clay layer, if present. If no clay layer is encountered, each will be screened just below the first encountered water bearing zone. Each well is estimate at 15 feet. Two (2) additional deeper borings will be made at locations specified on the site map. Each will be 35 feet deep and a monitoring well installed in the upper bedrock. The samples will be collected using a bucket auger, hand corer or an equivalent technique. Samples will be collected at each new strata and at one-foot intervals. Soil samples not analyzed will be archived by Recra Research, Inc. All field activities will be under the direct supervision of a qualified geologist and/or hydrogeologist. Due to sampling method limitations, the soil sampling will be conducted during dry weather conditions. See Figure 3 for sampling locations and Table 1 for parameters.

7.2.3 Sampling and Analysis - The procedures to be used in sampling ground and surface waters and sediments are described below. If desired, all samples will be split with the owner of the site. Also, upon completion of the analytical program, the owner will be notified of the results, if he so requests.



93rd STREET SCHOOL SAMPLING LOCATIONS

Not To Scale	SITE MAP 93rd STREET SCHOOL Niagara Falls N. Y.	Figure 3

TABLE 1

Parameter List
93rd Street School, Niagara Falls, NY

pH

Specific Conductance

Chloride

Sulfate

Total Organic Carbon

+ Cadmium

+ Chromium (Total)

+ Chromium (Hexavalent)

+ Copper

+ Iron

+ Lead

+ Mercury

+ Nickel

+ Silver

+ Zinc

+ Polychlorinated Biphenyls (PCB)

+ Halogenated Organic Scan (HOSE)

+ BTX Scan (Benzene, Toluene, Xylene)

+ Chlorobenzenes

+ Chlorotoluene

+ BHC's

+ Trichlorophenol

Dry Weight (soils only)

Dioxin (subcontracted and not included in price)

+ Indicates analyses also performed on soils

7.2.4 Groundwater - From the water levels within the existing wells, water elevations will be measured to determine the water table surface. Representative groundwater samples will then be collected after the wells have been fully evacuated or a volume of three times the well contents have been removed.

Evacuation of water from the wells and the acquisition of the samples will be accomplished with an Isco Model 1580 peristalitic pump, using separate low-density polyethlene tubing for each well and changing the silicon rubber tubing within the Isco between wells. An exception to this procedure will be employed when obtaining the required volume of sample for volatile organic analysis. This will be accomplished using small volume galvanized steel bailers that have been separately designated for each well.

Upon collection of the sample, field pH, temperature and conductivity measurements will be recorded. The samples will be placed in appropriate pre-cleaned bottles/septa vials, labeled, chilled and immediately returned to Recra's Tonawanda, New York laboratory for preservation and analysis of various chemical parameters.

7.2.5. Soil - Selected subsurface soil samples will undergo both physical and chemical analyses. The remaining samples will be archived by Recra Research, Inc. for a period of 6 months after completion of the contract.

The physical analysis will aid in the characterization of the underlying unconsolidated material. The physical parameters of concern during this

investigation are grain size distribution (ASTM-D-422), Atterberg limits (ASTM-D-423 & 424) and classification (ASTM-D-248). The number of samples to undergo analysis for the above parameters is dependent on the homogeneity of the subsurface conditions underlying the bottom of the uncontrolled hazardous waste landfill. The results from these tests, in conjunction with the Standard Penetration Test results will aid in the design and evaluation of remedial programs.

Chemical analyses of selected samples will be used to characterize attenuation by on-site soils and to establish the veritical and horizontal extent of soil contamination. Samples from the top soil, fill layer (if present), and each new strata of overburden encountered during the test boring excavation will be tested. Additionally, samples from each foot of unconsolidated deposit excavated will be archived by Recra Research and maintained for 6 months after the completion of this project.

7.2.6 Surface Water - The sampling of surface water will entail collecting water and sediments form Bergholtz Creek and the two storm sewers on the school playground. Sediments from the gully discharging into

Bergholtz Creek will also be collected. Water, if present, from the gully will be sampled. Two water samples will be obtained from Bergholtz Creek. One will be upstream of the site, the other at the downstream edge of the school property. The samples will be obtained using a pond sampler with separate sampling bottles designated for each sampling location. The same procedure as previously described for groundwater will be followed after acquisition of the surface water sample and the samples will be analyzed for the parameters listed. The storm sewers will be sampled in the same manner.

Since the possibility exists that contaminated water from the site discharges into the adjacent stream as a slug after storm events, and may not be contributing to degradation of the stream during the sampling interval, two (2) stream sediment samples will also be obtained and analyzed for the parameters listed. These samples will be obtained at the same locations as the water samples, as indicated on the attached site drawing. The samples will be collected using a 2 foot gravity type sampler. In addition, grab samples of sediments from the gully and the storm sewers will be obtained. All soil and sediment samples will be

placed in pre-cleaned, teflon-lined, screw capped glass jars, labelled, chilled, and returned to Recra for analysis. To avoid cross-contamination of the sediment samples, the core tube will be cleaned with water acetone, and distilled water between sample locations.

7.2.7 Chemical Analytical Methods - The procedure to be utilized for analyses of water, stream sediment and soil samples during this investigation are in basic accordance with one or more of the following reference texts:

- Methods for Chemical Analysis of Water and Wastes, United States Environmental Protection Agency,
- NIOSH Manual of Analytical Methods, 2nd Edition, United States Department of Health, Education and Welfare,
- Standard Methods for the Examination of Water and Wastewater, 14th Edition, APHA, AWWA, WPCF.

7.2.8 Quality Assurance Program - An overall Quality Assurance Program is essential for the production of high-quality analytical data. Such a program requires precise control of laboratory activities.

For the Quality Assurance Program in effect at the Laboratories of Recra Research, Inc., the reader is referred to a document previously submitted by Recra Research, Inc. to NYSDEC, entitled, "Operation Manual - Field and Analytical Services."

7.2.9 Engineering Evaluation Report/HRS Score - The purpose of this evaluation report is to compile all existing and newly-developed information concerning the site, and utilize this information to:

- o Evaluate feasible remedial alternatives at the site and prepare budget-level cost estimates for these alternatives

- o Based upon this evaluation, recommend the most cost-effective and environmentally sound course of remedial action

- o Prepare a Hazard Ranking System (HRS) score for the site.

It is presently anticipated that the output from this Evaluation Report will consist of a single bound report, subdivided into at least the following sections:

- HRS Score - Utilizing USEPA's formal method of presentation (Federal Register/Vol. 47, No. 137/Friday, July 16, 1982), the following completed work sheets will be included in this opening section: HRS Cover Sheet; Groundwater Route Work Sheet; Surface Water Route Work Sheet; Air Route Work Sheet; Fire and Explosion Work Sheet; and Direct Contact Work Sheet.
- Background
- Summary of Project Activities
- Identification and Evaluation of Remedial Alternatives
- Recommendations
- Appendix - Complete Site Data Base

7.3 Estimated Cost

The estimated cost per individual element of the preceding scope of work are listed as follows.

o Subsurface Investigation	$11454.42
o Analysis	12197.00
o Engineering Evaluation & Report	5868.70
TOTAL COST	$29520.12

APPENDIX A

DATA SOURCES AND REFERENCES

1. Morris, Richard, Director of Love Canal Revitilization Agency, personal interview, 6/3/83.

2. Knowles, G.D. and R. Tramontano, "NYS Dept. of Environmental Conservation Hazardous Waste Disposal Sites Report", 4/16/80.

3. NYS Department of Health, "Love Canal - A Special Report to the Governor and Legislature", April 1981.

4. U.S. Geological Survey, "Tonawanda West, New York, Topographical Quadrangle," 1965.

5. Kindle, E. and F. Taylor, "Niagara, New York", Geol. Atlas of the United States, U.S. Geol. Survey, Folio 190, 1913.

6. Johnston, R. H., "Groundwater in the Niagara Falls Area, New York", N.Y. Water Res. Comm. Bull. 6W-53, 1964.

7. U.S. Environmental Protection Agency, "Environmental Monitoring at Love Canal, Vol. I (EPA-600/4-82-030a) and Vol. II (EPA-600/4-82-0306)", May, 1982

8. N.Y.S. Division of Water Resources, "New York Water Classifications and Quality Standards, Chapter X, Article 2, Parts 700-704", 9/1/78.

9. N.Y.S. Division of Water Resources," Chapter X, Article 8, Part 835 Lake Erie - Niagara River Drainage Basin Series", 10/15/66.

10. Niagara Falls Dept. of Planning and Development, "Zoning Map of the City of Niagara Falls," 2/2/70

11. Batcheller, G., N.Y.S. Department of Environmental Conservation - Region 9, Telephone Conversation, 6/1/83.

12. Recra Research, 93rd Street School Site Visit, 6/3/83.

13. E.C. Jordan, Co., "Task V: Three Year Groundwater and Surface Water Monitoring Program Love Canal Area and Vicinity, Niagara Falls, New York", prepared for NYSDEC, 1/3/83.

14. U.S. Department of Commerce, National Climatic Center, "Climatic Altas of the United States", 1979.

15. U.S. Bureau of Census, "1980 Census of the Population", March 1981.

16. Town of Niagara Town Board, "Zoning Map of the Town of Niagara, Niagara County, New York," 3/14/78.

17. Krehbiel Associates, Inc. "Zoning Map of the Town of Wheatfield, Niagara County, New York", 10/4/82.

APPENDIX B

HAZARDOUS WASTE DISPOSAL SITE REPORT

REVISED

Code: A

Site Code: 9-32-078

Name of Site: 93rd Street School

Region: 9

County: Niagara

Town/City: (C) Niagara Falls

Street Address: 93rd Street

Status of Site:

- In 1954,, the Niagara Falls Board of Education contracted to have 3,000 cubic yards of fly ash and BHC hauled from Love Canal for fill at the 93rd Street School. Subsequently, the fill was covered by approximately 3 feet of topsoil and the site was landscaped to direct surface run-off northward towards Bergholtz Creek.
- The school was closed by the Board of Education in 1980.
- The site is located within a residential section of Niagara Falls.
- Benzene, toluene, BHC, lindane, and dioxin have been detected in on-site soil and groundwater and off-site storm sewers, surface waters, and sediments. Past investigations have failed to differentiate off-site impacts of the 93rd Street School site and other Love Canal sources.
- No measures have been taken to cap or seal the site; to provide containment; or to remove contaminated material from the site.

o Public has unlimited access to site and adjacent bodies of surface water.

Type of Site: Landfill

Estimated Size: Extent of fill area on schoolgrounds not known.

Hazardous Waste Disposal: Confirmed

Type and Quantity of Hazardous Wastes: 3,000 cubic yards of fly ash and BHC cake from Love Canal

Present owner: Niagara Falls Board of Education

Address: Superintendent of Schools 607 Walnut Avenue, Niagara Falls, New York

Time Period Site Was Used for Waste Disposal: 1954

Site Status: Inactive

Type of Samples: Soil, Surface Water, Groundwater

Remedial Action: None

Status of Legal Action: None

Permit Issued: None

Assessment of ENvironmental Problem: Contamination of on-site soil and groundwater has occurred. Possible contamination of off-site surface waters, storm sewers, groundwaters, and soil and sediments.

Assessment of Health Problems: Possible exposure of public using the site and adjacent surface water bodies to contaminants. May impact (though extremely limited when compared to other contamination sources) on the City of Niagara Falls drinking water supplies.

Person completing this form: Kevin C. Owen, Recra Research, Inc.

Date: June 3, 1983