PHASE I REPORT

ENGINEERING INVESTIGATIONS AND EVALUATIONS AT INACTIVE HAZARDOUS WASTE DISPOSAL SITES

Keytronics
Broome County, NY

SUBMITTED TO

New York State Department of Environmental Conservation

SUBMITTED BY

ENGINEERING-SCIENCE, INC.
in association with
DAMES & MOORE

JUNE 1983

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SECTION I

EXECUTIVE SUMMARY

Keytronics, Inc.

Objective

The purpose of this two phase program is to conduct engineering investigations and evaluations at inactive hazardous waste disposal sites in New York State in order to calculate a Hazard Ranking System (HRS) score for each site and estimate the cost of any recommended remedial action. During the initial portion of this investigation (Phase I) all available data and records combined with information collected from a site inspection were reviewed and evaluated to determine the adequacy of existing information for calculating an HRS score. On the basis of this evaluation, a Phase II Work Plan was prepared for collecting additional HRS data (if necessary), evaluating remedial alternatives and preparing a cost estimate for recommended remedial action. The results of the Phase I study for this site are summarized below and detailed in the body of the report.

Site Background

The Keytronics site is located at 707 North Street in Endicott, Broome County. The site consists of an electronics manufacturing plant and a parking area. The Keytronics Corporation is owned and operated by Harris Enterprises of Oswego, New York. Although waste materials are currently disposed of offsite, an area of railroad bed behind the parking lot was used at one time to dispose of waste solvent by dumping. Concern centers over the possible contamination of groundwater by this practice.

Assessment

Insufficient data was available to complete a final HRS scoring.

The preliminary HRS scoring for this site was:

$S_M = 26.12$	$S_A = 0$
$S_{GW} = 44.90$	$S_{FE} = 0$
$S_{SW} = 5.03$	$S_{DC} = 33.33$

There are no known analytical data available for this site. Additional target information is required for ground and surface water routes.

Recommendations

The following recommendations are made for the completion of Phase II:

- groundwater monitoring system consisting of one well.
- surface water monitoring system consisting of three stations
- sample analyses should include TOC, pH, TDS, and a GC/MS scan
- air monitoring survey with an OVA meter to determine air quality

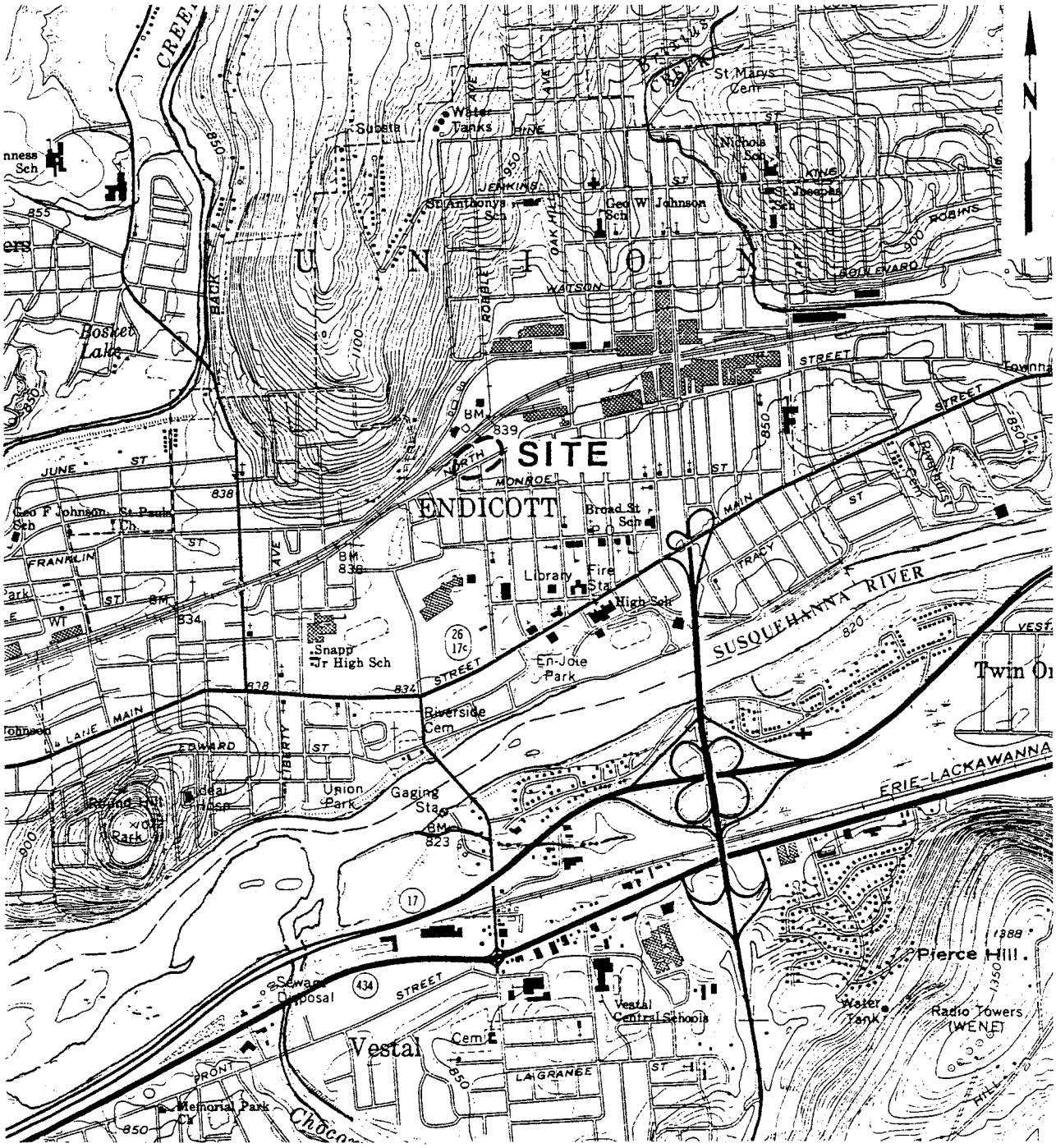
The estimated man hour requirements for Phase II are 231, while the estimated cost is $14,399.

SECTION II

SITE DESCRIPTION

Keytronics, Inc.

The Keytronics site is located at 707 North Street in Endicott, Broome County, New York. The site is occupied by a manufacturing plant and parking areas and is set in a commercial/light industrial district. Products manufactured at the plant include electronic coils, conductors and related devices. Although materials are currently disposed of offsite, an area of railroad bed behind the plant was used at one time to dispose of waste solvent. Methylene chloride contaminated with various lacquers and epoxy was dumped in small quantities over the rocks and allowed to evaporate. To date this practice has not been linked to contamination of the Endicott water supply wells.



SITE LOCATION MAP
KEYTRONICS

REFERENCE: U.S.G.S. 7.5' TOPOGRAPHIC MAP
ENDICOTT, NY (1976) QUADRANGLE

SECTION III

HRS SCORING

HRS COVER SHEET

Facility name: Keytronics

Location: Endicott, NY

EPA Region: II

Person(s) in charge of the facility: Mr. Harold Horton, President

Keytronics

707 North St., Endicott

Name of Reviewer: John Kubarewicz/Eileen Gillian Date: 5/19/83

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.)

Electronics manufacturing Company. Dumped waste solvents on railroad bed behind factory. Practice discontinued in 1979.

Scores: $S_M = 26.12$ ($S_{GW} = 44.90$ $S_{SW} = 5.03$ $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 33.33$

GROUND WATER ROUTE WORK SHEET

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section
1 Observed Release	(0) 45	1	0	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	0	6	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 1 (2) 3	1	2	3	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			13	15	
3 Containment	0 1 2 (3)	1	3	3	3.3
4 Waste Characteristics					3.4
Toxicity / Persistence	0 3 6 9 [12] 15 18	1	[12]	18	
Hazardous Waste Quantity	0 1 2 [3] 4 5 6 7 8	1	[3]	8	
Total Waste Characteristics Score			15	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well / Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 (35) 40	1	35	40	
Total Targets Score			44	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			25740	57,330	
7 Divide line 6 by 57,330 and multiply by 100 -7-		S_{gw} =	44.90		

SURFACE WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0)	45	1	0	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	0	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3		1	2	3	
Distance to Nearest Surface Water	0 1 (2) 3		2	4	6	
Physical State	0 1 2 (3)		1	3	3	
Total Route Characteristics Score				9	15	
3 Containment	0 1 2 (3)		1	3	3	4.3
4 Waste Characteristics						4.4
Toxicity/Persistence	0 3 6 9 [12] 15 18		1	[12]	18	
Hazardous Waste Quantity	0 1 2 [3] 4 5 6 7 8		1	[3]	8	
Total Waste Characteristics Score				15	26	
5 Targets						4.5
Surface Water Use	0 1 (2) 3		3	6	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	0	40	
Total Targets Score				8	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				3240	64,350	
7 Divide line 6 by 64,350 and multiply by 100				S_{SW} = 5.03		

DIRECT CONTACT 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	10	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 [3] 4 5	4	[12]	20	
Distance to a Critical Habitat	0 (1) 2 3	4	[4]	12	
Total Targets Score			16	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			7200	21,600	
7 Divide line 6 by 21,600 and multiply by 100			SOC = 33.33		

AIR 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	○	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 = ○		

Fire and Explosion Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	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

SFE = ◯

WORKSHEET FOR COMPUTING S_M

	S	S^2
Groundwater Route Score (S_{gw})	44.90	2016.01
Surface Water Route Score (S_{sw})	5.03	25.30
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2041.31
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		45.18
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		26.12

June 23, 1982

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: KEYTRONICS INC

LOCATION: ENDICOTT NY

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

NONE

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

CITY AQUIFER

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

≃ 50' (BASED ON STUDIES IN AREA)

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

UNKNOWN

Net Precipitation

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

36

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

28

Net precipitation (subtract the above figures):

8

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

CUT-AND-FILL AREA
SILTY + GRAVELLY FILL

Permeability associated with soil type:

10^{-3} CM/SEC ASSUMED

Physical State

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

LIQUID

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

UNCONTAINED
POURED ONTO GROUND

Method with highest score:

3, UNCONTAINED

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

METHYLENE CHLORIDE 2

Compound with highest score:

2, 2 => 12

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):

40 GAL/WK X 52 WK = 2080 GAL/YR
~40 DRUMS/YR
ASSUME 500 DRUMS => 3

Basis of estimating and/or computing waste quantity:

SITE INSPECTION REPORT 1980

* * *

5 TARGETS

Ground Water Use

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

DRINKING COMMERCIAL COOLER

Distance to Nearest Well

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

CITY WATER WELL; V. ENDICOTT WELL # 0041800C

Distance to above well or building:

3000'

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:

MOST OF CITY POPULATION

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):

NONE

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

45,000

SURFACE WATER ROUTE

1 OBSERVED RELEASE

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

NONE

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

0

Name/description of nearest downslope surface water:

SUSQUEHANNA RIVER

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

1.5%

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

NO

Is the facility completely surrounded by areas of higher elevation?

NO

1-Year 24-Hour Rainfall in Inches

2.3

Distance to Nearest Downslope Surface Water

0.37 MILES

Physical State of Waste

LIQUID

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

UNCONTAINED

Method with highest score:

3, UNCONTAINED LIQUID

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

METHYLENE CHLORIDE

Compound with highest score:

2, 2 => 12

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):

500 DRUMS => VALUE = 3

Basis of estimating and/or computing waste quantity:

NYS DEC MEMO (SITE INSPECTION)
MARCH 20, 1979

* * *

5 TARGETS

Surface Water Use

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

RECREATION

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:

0.9

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

UNKNOWN

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:

UNKNOWN

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

NONE

Total population served:

UNKNOWN

Name/description of nearest of above water bodies:

N/A

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

N/A

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

NONE DETECTED

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

Circle radius used, give population, and indicate how determined:

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

UNKNOWN

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:

0.9 MILES

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

UNKNOWN

Land Use

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

0

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

UNKNOWN

Distance to residential area, if 2 miles or less:

0.1 MILE

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

UNKNOWN

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

UNKNOWN

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
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D055272942

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
KEYTRONICS	707 NORTH STREET				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
ENDICOTT	NY	13760	BROOME	007	27

09 COORDINATES: LATITUDE 42°06'12.2" | LONGITUDE 076°03'17.2"

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
4 27 83 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	? (BEGINNING YEAR) to 1979 (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 _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
ART SEANOR	GEOLOGIST	D+M	(315) 638-2512
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
John KUBAREWICZ	ENGINEER	ES	(703) 591-7575
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
HAROLD HORTON	PRESIDENT	707 N STREET ENDICOTT	(607) 754-5405
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☐ PERMISSION ☐ WARRANT	15:40	CLOUDY, WARM

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
JOHN KUBAREWICZ	ES	(703) 591-7575

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
SAME				5 17 83 (MONTH DAY YEAR)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 005527942

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: UNKNOWN
- CUBIC YARDS:
- 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	UNKNOWN	—	METHELENE CHLORIDE, 250 GAL/Yr
PSD	PESTICIDES			LACQUER THINNER
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
SOL	METHYLENE CHLORIDE	999	SMALL CAN (1-2 GAL) SPILLED	30-40	GAL/WK

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)

NYS DEC MEMORANDUM 12/14/82
NYS DEC INSPECTION MEMORANOUM 3/20/79

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D055272942

II. HAZARDOUS CONDITIONS AND INCIDENTS

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

UNKNOWN

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

UNKNOWN

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

NO APPARENT ODOR, DISPOSAL OF HIGHLY VOLATILE SOLVENTS

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

Not apparent

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

EMC SUSPECT DUMPING OF SOLVENTS IN BACK LOT

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

UnKnown, however water supply well within 3000'

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

UnKnown

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

UnKnown

EPA

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

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER
NY D055272942

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
OPEN DISPOSAL OF HIGHLY VOLATILE SOLVENTS IN SMALL CANS, POURED ONTO RAILROAD BED STONES + ALLOWED TO EVAPORATE

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
DISPOSAL AREA WITH 12FT OF SEWER MANHOLE, ALSO, SEWER LINE UNDERNEATH DISPOSAL AREA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NOT LIKELY, PRIVATE PROPERTY

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)
LEPAK, L., 1982, DEC MEMO RE: KEYTRONICS

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D005527942

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES	N.A.			
☐ 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	18	DR
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☑ H. OPEN DUMP	UNKNOWN	
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)	05 OTHER
☐ A. INCENERATION	☑ A. BUILDINGS ON SITE
☐ B. UNDERGROUND INJECTION	
☐ C. CHEMICAL/PHYSICAL	
☐ D. BIOLOGICAL	
☐ E. WASTE OIL PROCESSING	06 AREA OF SITE
☐ F. SOLVENT RECOVERY	2 1/4 (Acres)
☐ G. OTHER RECYCLING/RECOVERY	
☑ H. OTHER NONE (Specify)	

07 COMMENTS

DRUMS CURRENTLY STORED IN BACK (TOTAL OF 18) MOSTLY EMPTY SMALL AMT OF SPILL ON GROUND, LABELED LACQUER THINNER OR KLEENSOLV 44. PAST PRATICE OF DUMPING SOLVENT ON RAILROAD BED

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.

DRUMS IN GOOD CONDITION

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☑ YES ☐ NO

02 COMMENTS

NO RESTRICTIONS

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

INSPECTION

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 0055272942

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL	02 STATUS: ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ☐	B. ☐	A. ☐	B. ☐	C. ☐	A. _____ (mi)
NON-COMMUNITY	C. ☐	D. ☐	D. ☐	E. ☐	F. ☐	B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☑ B. DRINKING (Other sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

02 POPULATION SERVED BY GROUND WATER: UNKNOWN

03 DISTANCE TO NEAREST DRINKING WATER WELL: UNKNOWN (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
UNKNOWN (ft)	UNKNOWN	UNKNOWN (ft)	UNKNOWN (gpd)	☐ YES ☐ NO

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

MUNICIPAL WATER SUPPLY FROM WELLS ALONG THE SUSQUEHANNA RIVER

10 RECHARGE AREA		11 DISCHARGE AREA	
☐ YES ☐ NO	COMMENTS	☐ YES ☐ NO	COMMENTS

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
SUSQUEHANNA RIVER	☐	0.37 (mi)
	☐	_____ (mi)
	☐	_____ (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. 12000 NO. OF PERSONS	B. 20,000 NO. OF PERSONS	C. 45,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 0 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE	04 DISTANCE TO NEAREST OFF-SITE BUILDING
_____	0 (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)

NYS DOH WATER SUPPLY Atlas

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D055272942

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	
UNKNOWN (ft)	UNKNOWN (ft)		

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
36-28-8 (in)	2.3 (in)	0 %	S	1.5 %

09 FLOOD POTENTIAL
SITE IS IN _____ YEAR FLOODPLAIN

10
☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. _____ (mi)	B. 0.9 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
0.9 (mi)
ENDANGERED SPECIES: PEREGRINE FALCON, GOLDEN EAGLE

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. 0 (mi)	B. 0.1 (mi)	C. _____ (mi)	D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

SITE IS LOCATED ON SUSQUEHANNA RIVER PLAIN AT THE BASE OF A VERY STEEP SLOPE (RELIEF = 600FT

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

USGS TOPOGRAPHIC MAP

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	005527294 2

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☑ GROUND ☐ AERIAL

02 IN CUSTODY OF D+M OFFICE
(Name of organization or individual)

03 MAPS ☑ YES ☐ NO

04 LOCATION OF MAPS D+M OFFICE

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

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

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D055272442

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
KEYTRONICS CORP		707 NORTH ST	3600	ENDICOTT	NY	13760

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
HARRIS ENTERPRISES		—	—	OWEGO		

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
FRANCIS HANIFAN	(REALTY)	BK OF ENDICOTT		ENDICOTT	NY	

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)

State NY Tax Records
Harold Horton May 1983

EPA

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: 0055272942

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

01 NAME	02 D+B NUMBER
KEYTRONICS	

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
SAME	

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

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)*

SAME

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

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER
NY D055272942

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
SAME	
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
N/A			
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
N/A			
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)

EPA

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

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER
NY D055272942

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
NY D055272942

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

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

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

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

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NO

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NONE

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

EPA

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

I. IDENTIFICATION

01 STATE | 02 SITE NUMBER
NY D055272942

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☑ YES ☐ NO

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

UPON NOTIFICATION FROM NYSDEC, KEYTRONICS DISCONTINUED DUMPING AND HIRED WASTE HAULER,

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

Memo from L. LepaK NYSDEC to L. Gross 12/14/82

EPA FORM 2070-13 (7-81)

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

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D055272942

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
KEYTRONICS INC	707 NORTH STREET

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
ENDICOTT	NY	13760	BROOME	007	27

09 COORDINATES LATITUDE	LONGITUDE
42°06'12.7"	076°03'17.2"

10 DIRECTIONS TO SITE (Starting from nearest public road)
NORTH OF NORTH ST, SOUTH OF RAILROAD TRACKS

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
HARRIS ENTERPRISES	—

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
OWEGO	NY		( )

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
KEYTRONICS	707 NORTH ST

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
ENDICOTT	NY	13760	(607) 754-5405

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 4/27/83 (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: ENGINEERING - SCIENCE (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☐ A. ACTIVE ☑ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
— (BEGINNING YEAR) | 1979 (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
WASTE METHYLENE CHLORIDE CONTAINS TRACES LACQUER THINNER, EPOXY, VARNISH

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
UP TO 1979 30-40 GAL/WK OF WASTE METHYLENE CHLORIDE WAS DUMPED ON RAILROAD BED. POSSIBLE GROUNDWATER CONTAMINATION

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
JOHN KUBAREWICZ	ENGINEERING SCIENCE	(703) 591-7575

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
			( )	5/16/83 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE: NY | 02 SITE NUMBER: D055272942

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: UNKNOWN

CUBIC YARDS: _____

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	UNKNOWN	—	METHYLENE CHLORIDE, 250 GAL/YR LACQUER THINNER
PSD	PESTICIDES			
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
SOL	METHYLENE CHLORIDE	999	SMALL CAN (1-2GAL) SPILLED	30-40	GAL/WK

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)

NYS DEC MEMORANDUM 12/14/82
NYS DEC INSPECTION MEMORANDUM 3/20/79

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 | 02 SITE NUMBER
NY 005272942

II. HAZARDOUS CONDITIONS AND INCIDENTS

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

UNKNOWN

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

UNKNOWN

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

NO APPARENT ODOR, DISPOSAL OF HIGHLY VOLATILE SOLVENTS

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: _____ 04 NARRATIVE DESCRIPTION

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

EMC SUSPECT DUMPING OF SOLVENTS IN BACK LOT

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

UnKnown, but water supply well within 3000'

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
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
NY 005272942

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

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

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

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

01 ☑ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) — ☑ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
OPEN DISPOSAL OF HIGHLY VOLATILE SOLVENTS IN SMALL CANS OF POURED ONTO RAILROAD BED STONES + ALLOWED TO EVAPORATE

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
DISPOSAL AREA WITH 12FT OF SEWER MANHOLE, ALSO SEWER LINE UNDERNEATH DISPOSAL AREA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NOT LIKELY, PRIVATE PROPERTY

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)
LEPAK, L., 1982, DEC MEMO RE: KEYTRONICS

SECTION IV

SITE HISTORY

Keytronics, Inc.

This site has been occupied for some years by manufacturing companies involved in the production of electronic devices. Ownership has changed hands several times. A company known as Bush Transformer manufactured on the site at one point and ownership was in the hands of Gladding Corporation just prior to acquisition by the current occupants. The land itself is now apparently owned by Harris Enterprises of Oswego, NY.

Wastes generated at the site have not been large in quantity and much of it has been disposed off site by means of municipal waste pick-up. However, at least up until some point in 1979, methylene chloride solvent was being disposed of by dumping on the railroad bed behind the plant. In 1979, approximately 30 to 40 gallons a week of this material was being disposed of in this manner. Being volatile, much of the solvent evaporated. Thinners, finishes and oils were often contained in the solvent.

Current management asserts that this practice is no longer followed and that no on-site disposal of wastes is taking place. In fact it appears that such practice was discontinued by 1980. It is not known for how many years on-site disposal took place nor what quantities of waste were involved at most specific times.

A well installed by IBM for groundwater investigations near the Keytronics site showed no methylene chloride but this well may not be located so as to provide conclusive information about contamination from the site.

SECTION V

SUMMARY OF AVAILABLE DATA

Keytronics

Regional Geology and Hydrology

The Keytronics site is located in the Appalachian Highlands physiographic province. The geology of this province is characterized by thick accumulations of clastic sedimentary rocks. In New York State, these rocks are Devonian in age, dip gently to the south, and reach several thousand feet in thickness. After the deposition of the bedrock, tectonic activity uplifted and fractured the bedrock, resulting in NE trending faults and modifications of deep fluid-flow regimes. Most of these rocks are deep aquifers; water flow is approximately southward.

In the recent past, most of New York State, including the site, has been repeatedly covered by a series of continental ice sheets. The activity of the glacier widened preexisting valleys and deposited widespread accumulations of till. The melting of ice, ending approximately 12,000 years ago, produced large volumes of meltwater; this water subsequently shaped channels and deposited thick accumulations of stratified, granular sediments. Occasionally, meltwater was dammed, forming lakes and associated lacustrine deposits.

At the present time, the land surface is being shaped largely by subaerial erosion. Frequently streams flow in valleys previously shaped by larger rivers and cut into former lake or meltwater channel deposits.

In these valleys, granular deposits frequently act as shallow aquifers, whereas lacustrine clays and tills often inhibit groundwater movement. However, fine-grained, water-lain sediments, such as silts and clays, frequently contain horizontal laminations and sand seams. These internal features facilitate lateral groundwater movement through otherwise low permeability materials.

Recharge of shallow aquifers generally occurs in the uplands, whereas discharge occurs either along hillsides or in valleys. Also, water from shallow aquifers may be vertically connected to underlying bedrock aquifers.

Site Geology

There are no on-site borings or wells. However, the site geology can be estimated based on nearby geological investigations and USGS topographic maps. The site is located in a broad meltwater channel currently occupied by the Susquehanna River. Bedrock is shale (Sonyea Group) and occurs at a depth greater than 140 feet below the site. From the top of rock to the ground surface is a thick layer of alluvial sand and gravel.

Site Hydrology

Site hydrology is estimated from nearby hydrogeological investigations and USGS topographic maps. A high-yield aquifer is located at depths below 50 feet to 60 feet. Due to the coarse-grained composition of the site soils, the entire soil column and bedrock are potentially hydraulicly connected. Due to the location of the site at the base of a steep slope, the aquifer may be recharged by groundwater moving down the slope of the hillside. Flow within the aquifer is probably southward toward the Susquehanna River.

Sampling and Anaylsis

To date no samples have been taken at the Keytronics site. According to a DEC memo (Lepack, 1982), the waste methylene chloride may contain one or more of the following items: varnish, lacquer, thinner, and mineral grade transformer oil. The memo also mentioned that methylene chloride was not found in a nearby monitoring well installed by IBM as part of their groundwater investigation in Endicott. However, the well is not properly located to assess any contamination on the Keytronics site.

SECTION VI

ASSESSMENT OF ADEQUACY OF DATA

Site: Keytronics

HRS Data Requirement	Comments on Data
Observed Release	
Ground Water	No available data, field data collection recommended.
Surface Water	No available data, field data collection recommended.
Air	No available data, field data collection recommended.
Route Characteristics	
Ground Water	Data available, adequate for HRS evaluation.
Surface Water	Data available, adequate for HRS evaluation.
Air	Data available, adequate for HRS evaluation.
Containment	Information available, adequate for HRS evaluation.
Waste Characteristics	Information available, adequate for HRS evaluation.
Targets	Insufficient information; more data collection recommended.
Observed Incident	Information available revealed no report of incident. No further investigation recommended.
Accessibility	Adequate information available.

SECTION VII

PHASE II WORK PLAN

Site: Keytronics

Objectives

The objectives of the Phase II activities are:

- To collect additional field data necessary to complete the HRS scoring.
- To perform a conceptual evaluation of remedial alternatives and estimate budgetary costs for the most likely alternative.
- To prepare a site investigation report.

The additional field data required to complete the HRS are defined as follows:

Ground Water - A ground water monitoring system consisting of one well is recommended. The well is to be constructed of 2-inch PVC pipe. The sample will be analyzed using a GC/MS scan.

Surface Water - A surface water monitoring system consisting of 3 monitoring stations is recommended. The water samples only will be analyzed using a GC/MS scan.

Air - An air monitoring survey with an OVA meter is recommended to check the air quality above the surface of the site.

TASK DESCRIPTION

The proposed Phase II tasks are described in Table VII-1.

COST ESTIMATE

The estimated manhours required for the Phase II project are presented in Table VII-2 and the estimated project costs by tasks are presented in Table VII-3. The cost for performing the Phase II project is $14,399.

TABLE VII-1
PHASE II WORK PLAN - TASK DESCRIPTION
Site: Keytronics

Tasks		Description of Task
TASK		
II-A	Update Work Plan	Review the information in the Phase I report, conduct a site visit, and revise the Phase II work plan.
II-B	Conduct Geophysical studies	No further studies necessary.
II-C	Conduct Boring/Install Install Monitoring Wells	Install one monitoring well. The well is to be constructed of 2-inch PCV pipe.
II-D	Construct Test Pits/ Auger Holes	No further construction of test pits/auger holes necessary.
II-E	Perform Sampling and Analysis	
	Soil samples from borings	No further sampling necessary.
	Soil samples from surface soils	No further sampling necessary.
	Soil samples from test pits and auger holes	No further sampling necessary.
	Sediment samples from surface water	No further sampling necessary.
	Ground-water samples	Analyze samples using a GC/MS scan.
	Surface water samples	Analyze samples using a GC/MS scan.
	Air samples	Using the OVA, determine the presence of organics.
	Waste samples	No further sampling necessary.
II-F	Calculate Final HRS	Based on the field data collected in Tasks IIB - IIE, complete the HRS form.
II-G	Conduct Site Assessment	Prepare final report containing Phase I report, additional field data, final HRS and HRS documentation records, and site assessments. The site assessment will consist of a conceptual evaluation of alternatives and a preliminary cost estimate of the most probable alternative.
II-H	Project Management	Project coordination, administration and reporting.

TABLE VII-2
PERSONNEL RESOURCES BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: KEYTRONICS)

TASK DESCRIPTION	TEAM MEMBERS, MANHOURS												TOTAL HOURS	TOTAL $
	PIC	TRB	PM	DPM	PCM	QAM	HSM	FTL	FT	RAAL	RAAT	SS		
II-A UPDATE WORK PLAN	1		4	1		1	1	6		6		8	28	469
II-B CONDUCT GEOPHYSICAL STUDIES													0	0
II-C CONDUCT BORING/INSTALL MONITORING WELLS			2			1	2	4	8			6	23	289.38
II-D CONSTRUCT TEST PITS/AUGER HOLES													0	0
II-E PERFORM SAMPLING AND ANALYSIS														
SOIL SAMPLES FROM BORINGS													0	0
SOIL SAMPLES FROM SURFACE SOILS													0	0
SOIL SAMPLES FROM TEST PITS AND AUGER HOLES													0	0
SEDIMENT SAMPLES FROM SURFCE WATER													0	0
GROUND-WATER SAMPLES			3					2	8			2	15	202.18
SURFACE WATER SAMPLES								2	10			2	14	148.48
AIR SAMPLES								1	8			2	11	109.56
WASTE SAMPLES													0	0
II-F CALCULATE FINAL HRS			2	2				2	6			8	20	262.7
II-G CONDUCT SITE ASSESSMENT	1	2	4	2				4	16	6	24	32	91	1103.84
II-H PROJECT MANAGEMENT	2		6	2	3	4	4					8	29	500.2
TOTALS	4	2	21	7	3	6	7	21	56	12	24	68	231	3065.34

TABLE VII-3
COST ESTIMATE BREAKDOWN BY TASK
PHASE II HRS SITE INVESTIGATION (SITE: KEYTRONICS)

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT LABOR COST	OTHER DIRECT COSTS (ODC), $ LAB ANALYSIS	TRAVEL AND SUBSISTANCE	SUPPLIES	EQUIP. CHARGES	SUBCON-TRACTORS	MISC.	SUBTOTAL ODC	TOTAL ($)
II-A UPDATE WORK PLAN	20	469		100	50	50		25	225	694
II-B CONDUCT GEOPHYSICAL STUDIES									0	0
II-C CONDUCT BORING/INSTALL MONITORING WELLS	23	289.38		75	100	50	1000	50	1275	1564.38
II-D CONSTRUCT TEST PITS/AUGER HOLES									0	0
II-E PERFORM SAMPLING AND ANALYSIS										
SOIL SAMPLES FROM BORINGS									0	0
SOIL SAMPLES FROM SURFACE SOILS									0	0
SOIL SAMPLES FROM TEST PITS AND AUGER HOLES									0	0
SEDIMENT SAMPLES FROM SURFACE WATER									0	0
GROUND-WATER SAMPLES	15	202.18	800	170	25	60		25	1080	1282.18
SURFACE WATER SAMPLES	14	148.48	2400		50			15	2465	2613.48
AIR SAMPLES	11	109.56		85	25	15		5	130	239.56
WASTE SAMPLES									0	0
II-F CALCULATE FINAL HRS	20	262.7			50	50		25	125	387.7
II-G CONDUCT SITE ASSESSMENT	91	1103.84			100	200		75	375	1478.84
II-H PROJECT MANAGEMENT	29	500.2		150	150	50		50	400	900.2
TOTALS	231	3085.34	3200	580	550	475	1000	270	6075	9160.34

OVERHEAD =	4405.87
SUBTOTAL =	13566.21
FEE =	832.57
TOTAL PROJECT COST =	14398.78

APPENDIX A

BIBLIOGRAPHY

APPENDIX A

Bibliography

Keytronics

Lepak, L. (1982), Memo to L. Gross of Department of Environmental Conservation of Syracuse. December 14, 1982.

Lepak, L. (1979), Memo to Dan Halton of Department of Environmental Conservation of Syracuse. March 20, 1979.

NYS Hazardous Waste Survey (1977), Keytronics. October 31, 1977.

NYS Museum and Science Service (1970) Map and Charts Series No. 15, Geological Map of NYS.

NYS Registry Form (1980), Keytronics. March 31, 1980.

New York State Department of Environmental Conservation

File

MEMORANDUM

TO: L. Gross
FROM: L. Lepak
SUBJECT: Keytronics, Inc. - Endicott (V) Inactive Dump site.

DATE: December 14, 1982

As you are aware, the Evening Press had a newspaper article last week, which reviewed the DEC assigned priorities of inactive dump sites in Broome County. Harold Horton, the plant manager of Keytronics, called me last week and protested the ranking of his firm. After discussing the ranking system with you last week, I was able to explain to Harold how the ranking was established for their inactive site. I am not sure that I agree with Keytronics assigned ranking in relation to other inactive sites, but certainly do agree that additional investigation is needed at their site to determine if a problem does exist.

I interviewed Harold during our conversation to try to better define the quantities of waste disposed on the ground. Harold told me that he could not estimate an average quantity of methylene chloride wasted during the previous years, due to the changing production requirements at Keytronics. The firm is a job shop and their methylene chloride use varies with the particular contracts they are working on. Harold thought that during some periods of time, no methylene chloride was wasted. He said that over the last three months, the firm has generated 6 drums of waste methylene chloride. The waste methylene chloride would normally contain one or more of the following items: varnish, lacquer thinner, and mineral grade transformer oil. Harold also could not estimate the length of time the ground disposal practice was used.

Harold did tell me that the disposal area was within 12 feet of a sewer manhole. He also thought that a sewer line from the plant was located under the disposal area and flowed into the manhole. He thought this sewer line was an old tile line with loose joints. No water supply wells are known to be in the Keytronics area, but no comprehensive field check has been made.

I recommend that groundwater wells and monitoring work be done at the Keytronics site to determine if a contamination problem does exist. IBM, in their groundwater investigation in Endicott, installed a well several hundred feet from Keytronics. According to Mr. Nirchi, no methylene chloride was found in this well. The well, however, is not properly located to assess any contamination at the Keytronics property, unless a large plume exists that was interrupted by the well.

I am copying Mr. McCarty on this memo to keep his section abreast of this situation. Please let me know if you desire me to pursue further action in this matter.

In summary, there is little information on the potential of a contamination problem at Keytronics, Inc. Groundwater investigating work is needed to determine whether or not a problem exists at the site.

L. Lepak

LTL:kr

cc: S. Lackey
B. McCarty

New York State Department of Environmental Conservation

MEMORANDUM

TO: Dan Halton
FROM: Larry Lepak LTL
SUBJECT: Inspection of Keytronics, Inc.
DATE: March 20, 1979

Today I visited the Keytronics plant in Endicott and met with the plant manager, Harold Horton. We met to review the chemical usage at the plant to determine if the firm should be named as having hazardous waste problems.

Mr. Horton reviewed with me that the principal products manufactured by the plant are electronic coils, conductors, inductors, semi-conductors, or other related devices. These devices are assembled at the plant and may be laminated, varnished, or painted with epoxy. No industrial wastewater is produced by the manufacturing processes.

I reviewed the list of materials used in the manufacturing process with Mr. Horton and decided that only the following materials might bear further investigation regarding their usage:

1. Paint
2. Epoxy
3. Varnish
4. Lacquer Thinner
5. Methylene Chloride
6. Silicone Oil
7. Transformer Oil

The only bulk waste stream of these materials which is disposed of outside of municipal refuse pickup is waste solvents (methylene chloride). Presently, about 30 to 40 gallons a week of methylene chloride is wasted at the plant. This material is poured on the railroad bed stones located just behind the plant and allowed to evaporate. The other materials do leave the plant in small quantities (on rags, paper, etc.) in the solid waste, which is taken to the Nanticoke Landfill. The transformer oil is mineral grade, not PCB. The waste epoxy should be dry and inert at the time of landfill disposal.

I reviewed my findings with both Paul Counterman and Pat Mullins. The solvent and other air emissions at the plant appear to be below the level where any emission point permit would be needed. No industrial waste hauler permit appears to be required for the miscellaneous solid waste stream, which is landfilled. Regarding the present disposal practice of the waste solvents, Paul recommended that this practice be stopped and the material disposed of through an acceptable firm such as Haz-O-Waste.

I called Mr. Horton back and told him what our Albany office had recommended for the solvent disposal to avoid possible environmental problems. Mr. Horton called me back later in the afternoon and said he had contacted Dick Green of Haz-O-Waste. He said that the firm will store the waste solvents for pickup and disposal by Haz-O-Waste. Mr. Green told Mr. Horton that he would send him the necessary paperwork required by our Department to accomplish this.

Based on my inspection at the plant and the information supplied by Mr. Horton, I recommend that you remove the name of the Keytronics firm from the list of active companies in the Region which might have hazardous waste problems. The County and State Health Departments had no additional information to add on this matter and did not accompany me on my inspection.

LTL/ems

cc: Larry Gross
Lee Flocke
Harold Horton

Initial Mailing 9/16/77 by DMQ
Initial Contact 10/20/77 by DMQ
Appointment Made / / by
Site or Phone Visit 10/31/77 by DMQ
Follow-up / / by
Form Completed 10/31/77 by DMQ
Comments: Magnetics device, transformers, inductors CH H. Horton CH/Eng Angel DePrisco (80) 15M

Company Code 3 0 1 7 6 1 2 9 0 1 4

Company Name Keytronics
Address 707 North St
Endicott, N.Y. 13760
County Broome Phone 607 754-5405
SIC Codes 1. 3679 3.
2. 4.

S.F. compl

New York State Hazardous Waste Survey
Department of Environmental Conservation
Division of Solid Waste Management
50 Wolf Road, Albany, N.Y. 12233 Telephone: (518) 457-6605

I. General Information

1. Company Name Keytronics

Mailing Address 707 North St. Endicott, NY. 13760.
Street City State Zip

Plant Location [ ] Same as above

Street City State Zip

2. If Subsidiary, Name of Parent Company Gladding Corp.

3. Individual Responsible for Plant Operations Harold Horton
Name

Gen. Mgr.
Title Phone

4. Individual Providing Information SAME
Name

Title Phone

5. Department of Environmental Conservation Interviewer Daniel M. Quackenbush

6. Standard Industrial Classification (SIC) Codes for Principal Products

Group Name	SIC Code (4 Digit)	Approximate % of [X] Production [ ] Value Added
a. Electronic Coil, Conductors,	3677	
b. & other Inductors.		
c. Semiconductor & other	3674	
d. related devices		

7. Processes Used at Plant
a. Lamination
b. Vacuum impregnation & varnish
c. Baking
d. Some prods are canned & filled
e. (epoxy) c). Wire are then printed

8. Products
a. TRANSFORMERS, MAGNETIC
b. DEVICES
c.
d.
e.

47-15-4(12/76)

and other chemicals used in manufacturing processes.

- lines
- on Si Xtal, Ferrite Pot Cores
- - (Emerson Cummings
- INT, grey, black
- amish (or 3M Co).
- f. Si Rubber Encapsulation Material
- g. lacquer thinner
- h. CH_2Cl_2 (Methylene Chloride)
- i. TRANSFORMER OIL (Petro. B TEXACO,
- j. SILICONE OIL

, Site Waste Water Treatment / /Yes /X/No

On Site Waste Water Treatment by July 1977 / /Yes / /No N/A

c. On Site Waste Water Treatment by July 1983 / /Yes /X/No

d. Industrial Sewer Discharge / /Yes /X/No Name of Sewage Treatment Plant Some cooling H_2O

e. SPDES No. ______ NPDES No. ______ N/A

1. a. Air Pollution Control Devices / /Yes /X/No Types ______

b. To Be Built / /Yes / /No by __/__/__

c. Air 100 Emission Point Registration Numbers ______

a. Number of manufacturing employees 56 TOT. (40 MFG.) b. Manufacturing Floor Space 13,500 TOT (10,000 MFG.) sq.ft.

3. Attach a plat or sketch of the facility showing the location of on-site process waste storage (if available).

Attach flow diagrams of chemical processes including waste flow outputs (if available).

In-house waste treatment capabilities: ______

6. Is there a currently used or abandoned landfill, dump or lagoon on plant property? / /Yes /X/No

Industrial wastes produced or expected to be produced by plant.

1) WASTE SOLVENT CLEANERS
*2) WASTE EPOXIES (VERY SMALL QTS. 4-5 gal/Mo)
3)
4)
5)
6)
7)
8)

Comments: ______

* Epoxies, Resins Cured – IF HEATED TO DECOMPOSITION EMITS HIGHLY TOXIC FUMES — BECAUSE OF SMALL QTY OF WASTE AND FACT THAT THIS MATERIAL ~~[illegible]~~ IS NOT BEING BURNED AT LANDFILLS, THIS IS ASSUMED NON-HAZARDOUS.

Company Code 3 6 1 7 6 1 2 0 0 2

: Characterization and Management Practice
a separate form for each waste stream)

1. Waste Stream No. 01 (from Form I, Number 17)

2. Description of process producing waste Cleaning of product during manufacturing

3. Brief characterization of waste spent solvent cleaner

4. Time period for which data are representative Current Est to _____

5. a. Annual waste production 250 / /tons/yr. /X/gal./yr.

   b. Daily waste production 1 / /tons/day /X/gal./day

   c. Frequency of waste production: / /seasonal /X/occasional / /continual

   / /other (specify) _____

6. Waste Composition

   a. Average percent solids ____% b. pH range __ to __

   c. Physical state: /X/liquid, / /slurry, / /sludge, / /solid,

   / /other (specify) _____

d. Component	Average Concentration	/ /wet weight / /dry weight	
1. CH_2Cl_2		/ /wt.%	/ /ppm
2. Lacquer thinner		/ /wt.%	/ /ppm
3. contaminants - oil, grease etc.		/ /wt.%	/ /ppm
4.		/ /wt.%	/ /ppm
5.		/ /wt.%	/ /ppm
6.		/ /wt.%	/ /ppm
7.		/ /wt.%	/ /ppm
8.		/ /wt.%	/ /ppm
9.		/ /wt.%	/ /ppm
10.		/ /wt.%	/ /ppm

Company Code 3|6|7|7|6|1|2|0|0|2

Analysis of composition is [ ] theoretical [ ] laboratory [X] estimate
(attach copy of laboratory analysis if available)

f. Projected [ ] increase, [ ] decrease in volume from base year: _____% by July 1977;

_____% by July 1983.

g. Hazardous properties of waste: [X] flammable [X] toxic [ ] reactive [ ] explosive

[ ] corrosive [ ] other (specify) _____

7. On Site Storage

a. Method: [ ] drum, [ ] roll-off container, [ ] tank, [ ] lagoon, [X] other (specify) Small 1-2 gal can

b. Typical length of time waste stored 2-3 [X] days, [ ] weeks, [ ] months

c. Typical volume of waste stored 1-3 [ ] tons, [X] gallons

d. Is storage site diked? [ ] Yes [ ] No } N/A

e. Surface drainage collection [ ] Yes [ ] No }

8. Transportation

a. Waste hauled off site by [ ] you [ ] others

b. Name of waste hauler N/A

Address _____
Street City

_____ ( )
State Zip Code Phone

9. Treatment and Disposal

a. Treatment or disposal: [X] on site [ ] off site

b. Waste is [ ] reclaimed [ ] treated [X] land disposed [ ] incinerated

[ ] other (specify) _____

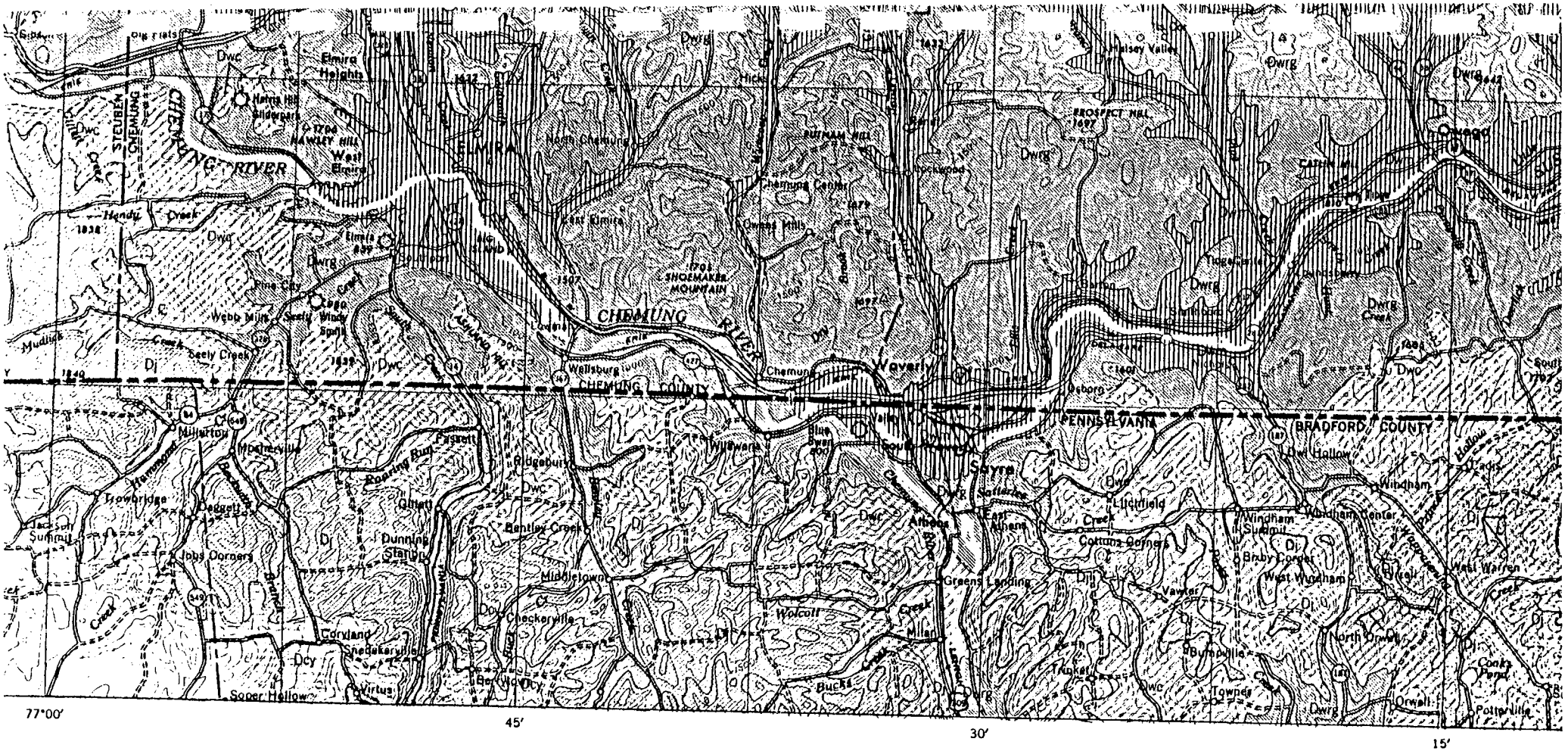
c. Off site facility receiving waste

Name of Facility DUMPED IN BACKYARD 1-2 gals at a time

Facility Operator _____

Facility Location _____
Street City

_____ ( )
State Zip Code Phone



GEOLOGIC MAP OF NEW YORK

1970

Finger Lakes Sheet

Scale 1:250,000

5 0 5 10 15 Statute Miles 20

5 0 5 10 15 20 25 Kilometers 30

CONTOUR INTERVAL 100 FEET

REPORT FORMAT

Keytronics
Region 7 Broome

Priority Code: B

Site Code: 704001

Name of Site: Keytronics

County: Broome

Region: 7

Town/~~City~~ Union Union

Street Address: 707 North Street, Endicott

Status of Site Narrative:

Keytronics, North Street, Endicott, Broome County

~~E Classification~~

- An inspection of this facility indicated that the company was disposing of waste methylene chloride on their own premises. Relatively small amounts of this highly volatile industrial solvent were disposed of and much of this solvent may have evaporated. While this site clearly was not operated or closed out properly, there is very little that can be done except to keep the site under periodic surveillance. The on-site disposal of these solvents has been discontinued.

~~[illegible]~~

Type of Site: Open Dump ☒ Landfill ☐ Structure ☐ Treatment Pond(s) ☐ Lagoon(s) ☐

Number of Ponds ________
Number of Lagoons ________

Estimated Size <1 Acres

Hazardous Wastes Disposed? Confirmed ☑ Suspected ☒

*Type and Quantity of Hazardous Wastes:

TYPE	QUANTITY (Pounds, drums, tons, gallons)
Methylene Chloride	30-40 gallons/week

*Use additional sheets if more space is needed.

Name of Current Owner of Site:
Address of Current Owner of Site:

Time Period Site Was Used for Hazardous Waste Disposal:
_____, 19____ To _____, 19____

Is site Active ☐ Inactive ☒
(Site is inactive if hazardous wastes were disposed of at this site and site was closed prior to August 25, 1979)

Types of Samples: Air ☐ Groundwater ☐ None ☒
Surface Water ☐ Soil ☐

Remedial Action: Proposed ☐ Under Design ☐ None
In Progress ☐ Completed ☐
Nature of Action:

Status of Legal Action: _____ State ☐ Federal ☐ None

Permits Issued: Federal ☐ Local Government ☐ SPDES ☐
Solid Waste ☐ Mined Land ☐ Wetlands ☐ Other ☐
None.

Assessment of Environmental Problems:
Past disposal practices have required a D.E.C. trackdown program to be instituted in the Village of Endicott. Additional sampling needs to be completed on various media.

Assessment of Health Problems:
None known, but potential impact of this widespread groundwater contamination on the Village of Endicott public water supply is being monitored.

Persons Completing this Form:

L. T. Lepak
GDK/dgg

New York State Department of Environmental Conservation
Date 3/31/80

New York State Department of Health
Date

1/18/80
GDK:el

APPENDIX B

NYS REGISTRY FORM

HAZARDOUS WASTE DISPOSAL SITES REPORT
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Code: _____

Site Code: 704001

Name of Site: Keytronics Region: 7

County: Broome Town/City Union

Street Address 707 North Street, Endicott

Status of Site Narrative:

An inspection of this facility indicated that the company was disposing of waste methylene chloride on their own premises. Relatively small amounts of this highly volatile industrial solvent were disposed of and much of this solvent may have evaporated. While this site clearly was not operated or closed out properly, there is very little that can be done except to keep the site under periodic surveillance. The on-site disposal of these solvents has been discontinued.

Type of Site: Open Dump ☒ Treatment Pond(s) ☐ Number of Ponds _____
Landfill ☐ Lagoon(s) ☐ Number of Lagoons _____
Structure ☐

Estimated Size 1/4 Acres

Hazardous Wastes Disposed? Confirmed ☐ Suspected ☒

*Type and Quantity of Hazardous Wastes:

TYPE	QUANTITY (Pounds, drums, tons, gallons)
Methylene Chloride	30-40 gallons/week

* Use additional sheets if more space is needed.

APPENDIX C

GENERIC HEALTH AND SAFETY PLAN

APPENDIX C

HEALTH AND SAFETY PLAN OUTLINE

I. PURPOSE

The purpose of this plan is to assign responsibilities, establish personnel protection standards, mandatory operating procedures, and provide for contingencies that may arise while operations are being conducted at the site.

II. APPLICABILITY

The provisions of the plan are mandatory for all on-site investigation personnel and personnel under contract while initial site reconnaissance and/or preliminary investigation activities are being conducted at the site. These activities include investigation, sampling, and monitoring undertaken on the site or at any off-site areas which may be affected by contamination from the site.

III. RESPONSIBILITY

1. Principal Investigator (PI)

   a. The PI shall direct on-site investigation efforts for each discipline. At the site, the PI, assisted by the Team Safety Officer, has the primary responsibility for:

      1) Assuring that appropriate personnel protection equipment is available and properly utilized by all on-site personnel and subcontractor personnel.
      2) Assuring that personnel are aware of the provisions of this plan, are instructed in the work practices necessary to

ensure safety, and in planned procedures for dealing with emergencies (Provisions, Work Practices and Emergency Procedures) appropriate to this investigation.

3) Assuring that personnel are aware of the potential hazards associated with site operations.
4) Supervising the monitoring of safety performance by all personel to ensure that required work practices are employed.
5) Correcting any work practices or conditions that may result in injury to personnel or exposure to hazardous substances.

HEALTH AND SAFETY PRELIMINARY SITE INVESTIGATION

Based on the appropriate listed field activity plans, as well as other site information (such as waste types and chemistry) as learned from the data collecting and analysis, the Principal Investigator/Team Safety Officer will develop an appropriate health and safety plan for the site.

Planning for Site Entry

In order to determine whether it is safe for the investigative team to proceed with the study and/or to determine what appropriate level of protective clothing and equipment should be used, the nature and extent of the on-site hazards will be assessed prior to site inspection. An on-site reconnaissance utilizing appropriate monitoring equipiment will check for:

- exposivity
- atmospheric concentrations of hazardous vapors, bases, fumes, and dusts
- oxygen deficiencies
- physical hazards posed by site features/topography

If during the initial site reconnaissance, the monitoring equipment detects evidence of fire or explosion potential or high levels of radiation, further entry into the site will not be allowed. The site inspection will be delayed until such problems can be resolved appropriately.

The initial site reconnaissance will be performed by team personnel equipped with the level of protective clothing and any additional gear

that is required for their safe entry to the site. In order to provide sufficient lead time to "fine tune" safety and data gathering plans, this initial site reconaissance should be performed at least one week before the scheduled site investigation.

Based on this information regarding the associated conditions, a detailed plan providing for the safety of field personnel and the public will be developed in accordance with EPA and OSHA and regulations and USAF operating procedures. This plan may address such factors as (dependent on specific site/waste conditions):

- Types of exposures to hazardous materials (e.g., inhalation, skin absorption, ingestion, and eye contact), and the potential effects of each exposure pathway for each hazardous waste.
- High risk areas (surface contamination, exposed containers, or areas containing concentrations of chemical vapor, oxygen deficiency, explosive or flammable potential or radioactivity).
- Required protective and related equipment and procedures to adequately protect field personnel from perceived hazards on site.
- Decontamination procedures.
- Procedures for the prevention of accidental releases of hazardous substances to the air, soil, or surface water and procedures for implementation of proper contingency plans if such releases do occur.
- Procedures for the proper disposal of hazardous wastes generated in the course of the site inspection.
- Equipment and procedures for handling special site inspection conditions (e.g., prolonged operations, weather extremes, etc.).
- Emergency procedures.
- Arrangements with local hospitals and other local authorities.

The site-specific safety plan should be sufficient to provide the site inspection team with all applicable information assure health and safety. However, additional procedures may need to be considered and developed given site-specific conditions identified both before and during the site inspection.

Site Entry and Field Activities

Three sequential stages are identified to constitute the field activities:

- Initial setup
- Exploration and sampling
- Demobilization

Initial Setup

The main functions in this step are to secure entry and establish safety criteria. All operations will be managed from a central point, including:

- General supervision of area activities
- Decontamination process coordination
- Field communication
- Safety and medical coordination
- Equipment staging
- Recordkeeping
- Other functions as required

Exploration and Sampling

During this stage most field activities will be performed by pairs or small groups of team members. These tasks will include the following:

- Observation of visible spills, leachate seeps, etc., and sampling water and/or soils at these areas.
- Photography.
- Geophysical surveys (Electromagnetic or Metal Detection).
- Electrical resistivity measurements to detect ground-water contamination.
- Soil sampling using hand-operated equipment and drilling rigs.
- Ground-water sampling and water level measurements from existing wells.
- Surface water sampling.

Demobilization

This is the final stage of field activities in which field personnel will:

- Decontaminate used equipment.
- Transfer equipment and samples obtained to the decontamination staging area.
- Undergo personnel decontamination procedures.
- Load all equipment and samples on to the project vehicle(s).

The PI will supervise all the above steps through its conclusion. Field team members should not depart until all subcontractors personnel and equipment have left the site.

APPENDIX D

GENERAL FIELD PROCEDURES

APPENDIX D

General Field Procedures

Installation of Groundwater Quality Monitoring Wells

To investigate the groundwater quality within the aquifer of concern, groundwater monitoring wells will be installed. To accomplish the purposes of the monitoring wells a series of separate field procedures have been prepared. These include:

A - Drilling Procedures
B - Monitoring Well Construction Procedures
C - Water Sampling Procedures

The field program will be under the overall direction of the geologist in charge. Detailed supervision of the field work will be the responsibility of the field geologist. In particular, the field geologist will have the following responsibilities.

- Supervision of all drilling work and well construction
- Maintenance of the boring log for each boring
- Collection, labeling, and identification of formation samples, including rock cores.
- Conducting in cooperation with the driller, required in situ falling head tests and pumping tests.
- Performance of the water sampling program.
- Maintenance of pertinent notes in his/her field notebook and on daily field memos.

Health and safety procedures as set forth by the site Health and Safety Plan will be adhered to for all field operations.

A. Drilling Procedures

General Procedures

A qualified drilling subcontractor will be selected to provide all the equipment materials and skilled labor necessary to advance the test borings to the depths specified by the field geologist.

Order of Drilling Wells — All wells will be drilled in numerical sequence from what is considered the upgradient location (least contaminated) to the downgradient (most contaminated) with the upgradient boring being labeled "B-1".

Method of Drilling — Minimum of 4" ID hollow stem augers. If formational materials preclude the use of augers rotary drilling methods will be employed (e.g. for coring of bedrock).

Formational Sampling — Samples will be collected at a minimum of every 5 feet in the borings and at each lithographic change noted. A D&M sampler will be used to obtain one sample from each major layer in each boring. Other samples will be obtained with a standard split spoon sampler. Bedrock will be sampled continuously by coring with an NX double tube core barrel. All sampling equipment will be thoroughly cleaned after obtaining each sample.

The cleaning method employed will be dependent upon the type of contaminant suspected to be present at that location.

Measurements — The depth to the water level in each boring being drilled should be measured each morning and just prior to installation of any monitoring devices into a boring. The depth of the boring should be measured and recorded on the boring log upon reaching final depth.

Decontamination Requirements	All downhole equipment and above hole equipment that may come in contact with subsurface materials will be steam cleaned at the drilling location prior to initiating any drilling and between each boring and at the conclusion of the drilling program. The steam cleaning rinse water will be allowed to discharge to the ground surface at the well site. Care will be taken to assure this water does not come in contact with any surface water source.
Site Cleanup	All drill cuttings remaining after well installation will be removed for proper disposal. All debris, paper, etc. will be removed and all depressions resulting from drilling operations will be filled in.

Drilling Procedures for Bedrock Boring

1. Sample formation every 5 feet and at every major lithologic change.

2. Drill and sample the unconsolidated formations until bedrock is encountered.

3. Ream the hole to at least 6 inches in diameter.

4. Make ready an appropriate length of steel casing by cleaning.

5. Place enough volclay pellets in the hole to make a layer of about one-foot thickness at the bottom of the boring.

6. Place the steel casing in the hole, and bottom it snugly into the bentonite. Once the casing is set, it should not be lifted until the completion of the well.

7. Circulate the drilling fluid; drill a few inches below the bottom of the volclay layer and circulate for a few minutes to clean the boring of most of the bentonite. Clean out this part of the boring by circulating clean water.

8. Drill into the bedrock the required depth using the NX double-tube core barrel.

9. Store the rock cores in specially constructed wooden rock-core boxes, for inspection and description by the field geologist.

10. Measure water level in boring.

11. Construct well in the boring

Drilling Procedures for Soil Borings

1. Sample formation every 5 feet and at every major lithologic change.

2. Drill to the depth estimated.

3. Measure water level in boring.

4. Construct well in boring.

Procedure for Abandoning a Boring

A cement slurry containing about 5 lbs. bentonite and one bag of cement per 8 to 10 gallons of water should be pumped into the hole to the ground surface.

B. MONITORING WELL CONSTRUCTION PROCEDURES

General Specifications and Procedures

Casing and Well Screen:	2-inch I.D. Schedule 40 PVC with flush screw joints or 2-inch I.D. stainless steel with flush screw joints.
Screen Slot Size:	Based upon materials encountered in boring.
Storage of Casing and Screen:	The casing and screen lengths will not be stored directly on the ground. The well string shall be prepared on a clean plastic sheet spread out over level ground.
Cleaning of Casing and Screen:	Casing and screen shall be cleaned before installing in the boring.
Bottom Cap and Blank Casing:	A length of blank casing of about two feet complete with a bottom cap shall be placed below the well screen in all cases.
Gravel Pack:	The gravel pack material will be 90 percent by weight larger than the screen size and should have a uniformity coefficient of 2.5 or less.
Placement of the Gravel Pack:	The gravel pack should be emplaced so that it extends to three feet above the top of the well screen. This should be confirmed by measuring down the annular space with a weighted tape or with a measured small-diameter pipe. The volume of gravel pack material emplaced should be compared with the volume computed as required, based on the screen diameter and length. The gravel pack may be poured directly down the annular space provided the well is pressurized and an upward flow of pure water is maintained in the annular space by introducing the water at a low rate through the well casing which would enter the annular space through the well screen openings.

Bentonite Seal:

A bentonite seal shall be placed in the annular space above the gravel pack in each well by emplacing 1/4-inch diameter volclay pellets in the annular space during which time the low flow rate up the annular space in maintained. This bentonite seal should be at least 2 feet thick. The bentonite shall be compacted with a donut shaped weight that slides over the well casing.

Well Development:

Each well should be developed for about 30 minutes to one hour using an air-lift surging method. Appropriate piping should be assembled for the discharge water so as to discharge it and dispose of it in a manner to limit contamination of the surrounding area. The discharge during development should be estimated by using a 5-gallon bucket and a stop watch. In the course of development, if a well turns out to have a very low specific capacity, it may prove necessary to add some clean water in order to remove as many fines as possible from the vicinity of the well screen. Development should be continued until all but a trace amount of fines and suspended solids appear in the discharge water. Following development, the air line hose or pipe and associated fittings should be thoroughly cleaned and then rinsed.

Grouting Annular Space:

A bentonite-cement grout (5 lbs. bentonite and one bag of cement to 8-10 gallons of water) will be pumped into the annular space to fill the space from the top of the volclay bentonite seal to the ground surface.

Protective Casing:

A length of 6-inch I.D. steel casing with a lockable cap should be placed over the well casing in each case to protect it. It should be set about one foot into the bentonite cement grout in the annular space, and should stick up above ground about 2 to 3 feet.

Well Labeling: The full number of each monitoring well should be painted on the protective casing and cap.

Surveying: A level survey will be performed in which the elevation of the top of the inside casing of each well will be determined 0.01 ft. and the reference point marked.

The Construction site makes it impossible to prescribe one single Deep or Shallow well construction configuration. Therefore a generic well construction configuration for both deep and shallow wells has been developed.

Deep Well Construction

1. Place well screen so as to screen entire thickness of lower sand and gravel layer (if it exists), unless the layer exceeds 20 feet in thickness; the well screen should extend about two feet into the top of bedrock.

2. If a clay layer immediately overlies the bedrock and the overlying surficial sand and gravel is less than 30 feet, place the screen in only the upper five feet of bedrock.

3. If no significant clay/lacustrine layer exists and if the surficial sand and gravel layer is greater than 20 feet thick place screen in lower 15 to 20 feet of the sand and gravel layer, extending also two feet into bedrock.

4. If no significant clay/lacustrine layer exists and if the surficial sand and gravel layer is less than 20 feet in thickness screen entire saturated thickness, in addition to about 5 feet above the summer static water level and about two feet into the underlying bedrock.

5. After installation of the well screen and casing, and the gravel pack, emplace volclay pellets to form a 2 to 4 foot thick seal in the annular space above the gravel pack. Use 1/4-inch diameter pellets and maintain a low flow rate up the annular space during emplacement so as to insure that they settle in place evenly around the annular space. Measure the depth to the top of the seal.

6. Using a bentonite-cement grout (described in the foregoing section), pump grout into the annular space so as to grout up to the top of the clay layer.

7. Jack the 6-inch casing out of the hole.

8. Develop the well and complete it as described under the foregoing section.

Shallow Well Construction

1. Place the well screen so that it extends from the top of any clay layer (if it exists) to about 5 feet above the summer static water level, unless the saturated thickness is greater than 20 feet, in which case the screen should be placed opposite the upper 20 feet of the saturated part of the unit, extending as well about 5 feet above the summer static water level. In the case of shallower wells less than 20 feet deep, place screen from bottom of hole to within 5 feet of land surface. For very shallow water table, the top of screen should be two feet above the estimated high water table or no closer than two feet to the land surface.

2. Emplace the volclay pellets as described above for the deep wells. A one-foot thick bentonite seal should be adequate.

3. Develop and complete the well as described under General Specifications Procedures.

C. GROUNDWATER SAMPLING PROCEDURES

Following the installation of the well, individual groundwater samples will be collected according to the procedures included below from each well for analyses. These samples will be collected using a positive displacement sampling device made entirely from stainless steel and teflon. This procedure will permit us to collect a sample that is more representative of the aquifer water and to limit the possibility of degassing and volatilization. The well storage water will be evacuated with a submersible pump or air lift system whereby the air is not permitted to come in direct contact with the aquifer. The

sampling pump will be cleaned between wells by immersion into a solvent, followed by a distilled deionized water rinse. A quantity of each of these will be pumped through the pump and teflon tubing.

As a part of our ongoing QA program, field blanks, consisting of distilled deionized water from the discharge of the pump following cleaning will be taken between selected wells to monitor the effectiveness of the cleaning procedures. Two typed of trip blanks will also be taken. The first type consists of a sample bottle filled with distilled, deionized water that will be capped and accompany the samples at all times. The second type will consist of a sample bottle filled with distilled, deionized water and set aside open to the atmosphere, during the sampling of the wells. The purpose of these trip blanks is to evaluate the potential for atmospheric contamination, and to assure that proper sample bottle preparation and handling techniques have been employed.

The samples collected from these sampling efforts will be analyzed for indicator parameters identified during the Phase I.

WATER SAMPLING PROCEDURES.

1. Open well and trip blank and record initial static water levels.

2. Wash down pump:

- For organics use hexane followed by methanol and finally distilled water

- Collect wash solvents and rinse in a bucket, etc. (a 5 gal. container w/ a large funnel works well)

- Wash pump inside and outside

3. Install pump in well: Use stainless steel pump and teflon tubing

- Each well should have its own tubing. Tubing should be cleaned and thoroughly rinsed between sampling events.

- Pump should have a check valve, preventing water having been in internal contact with the pump and the tubing from draining back into the well.

4. Pump at least two exchanges of water

- Care should be taken so as not to over pump, whereby excessive concentrations are drawn into the well. The number of exchanges pumped should be based upon the soil typed, flow patterns and aquifer properties of each well.

5. Take a sample:

- From pump discharge: Insert discharge tube to bottom of jar. Withdraw tube ahead of the sample so that aeration and turbulence is minimized.

- Some samples must be filtered in the field. This should be done prior to filling the sample container.

- For volatile organics samples should not be taken from the pump discharge. Aeration from the pump will destroy organic volatiles.

6. Immediately perform field tests such as temperature, pH, specific conductivity and D.O.

7. Refrigerate samples at $4^{o}C$.

8. Cap well and trip blank.

9. Wash all equipment.

NOTES: - The sampling procedures should reflect the sample parameters. Those parameters subject to change with changes in pH, D.O. may need to be sampled using stainless steel bailers.

- Some sample parameters require filtering in the field.

- For accountability and traceability of the samples, two forms are included which are examples of what we presently use.

EQUIPMENT BLANKS:

- Wash pump with solvents, collecting solvent rinse. Care must be taken in the selection of solvents, so damage to the pump will not occur. Rinse with distilled water.

- Take a sample of "clean" water,

- Turn on pump, sample first "slug" of water from the pump

- Pump volume equivalent to amount typically pumped from the well. DO NOT recirculate the water.

- Take sample from pump at end of pumping period

- Refrigerate samples.

APPENDIX E

QUALITY ASSURANCE

APPENDIX E

OUTLINE OF QUALITY ASSURANCE PROCEDURES

1.0 GROUND-WATER SAMPLING

1.1 General Requirements

(a) Obtain representative ground-water quality samples
  (1) Wells located properly
  (2) Sampling zone defined
  (3) Well constructed properly
  (4) Well developed properly
(b) Select sampling method in accordance with analyses of interest and well characteristics, see Figure B.1.
(c) Sampling procedures should not materially alter sample, see Figure B.2.
(d) Storage/shipment procedure must not alter sample

1.2 Procedures for Monitoring Well Development

(a) Perform prior to each sampling effort
(b) Measure water level
(c) Determine volume of water stored in casing
(d) Remove three to five volumes of water from well
  (1) Bail
  (2) Pump
(e) Insure that device does not introduce contaminants into well
(f) Measure water level recovery
(g) Sample after complete recovery
(h) Perform in-situ tests
  (1) Flow direction & velocity (Flow Meter®)
  (2) Quality (Hydrolab®)
  (3) Permeability
(i) Insure that in-place testing does not contaminate well prior to sample acquisition

1.3 Sampler Construction Material

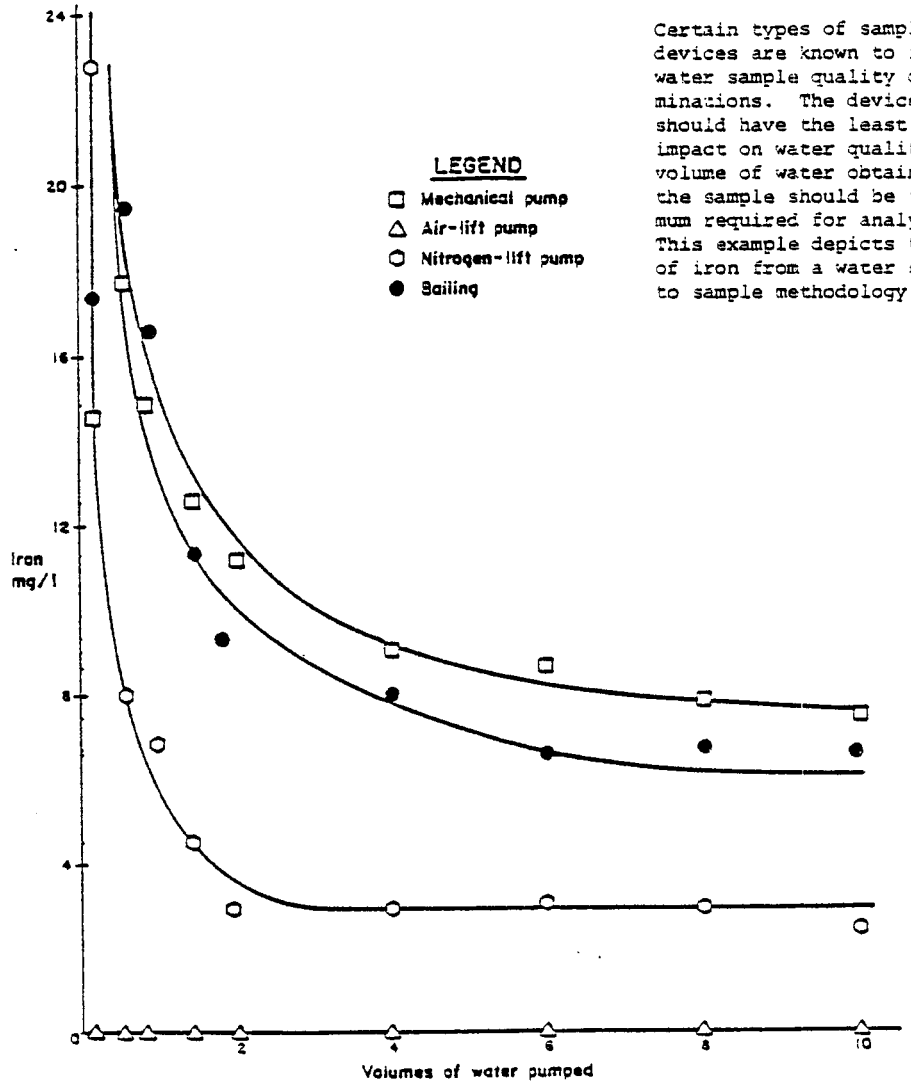
A major point to consider is the type of contaminants anticipated in the ground-water system. A sampling device should be constructed of inert materials that will not alter the trace concentrations of chemical parameters. Sampler construction materials are listed in order of preference.

Sampler Construction Materials:

(a) Glass®
(b) Teflon®

FIGURE E.1

Effects of Various Sampling Methodologies on Water Quality



Certain types of sampling devices are known to impact water sample quality determinations. The device selected should have the least negative impact on water quality. The volume of water obtained for the sample should be the minimum required for analysis. This example depicts the loss of iron from a water sample due to sample methodology.

SOURCE: "Monitoring Well Sampling and Preservation Techniques," Proceedings of the Sixth Annual Research Symposium / Disposal of Hazardous Wastes, March, 1980.

FIGURE E.2

SAMPLING EQUIPMENT SELECTION

Diameter Casing	Bailer	Peristaltic Pump	Vaccum Pump	Airlift	Diaphragm "Trash" Pump	Submersible Diaphragm Pump	Submersible Electric Pump	Submersible Electric Pump w/Packer
1.25-inch								
Water level <20 ft.		X	X	X	X			
Water level >20 ft.				X				
2-inch								
Water level <20 ft.	X	X	X	X	X	X	X	
Water level >20 ft.	X			X		X	X	
4-inch								
Water level <20 ft.	X	X	X	X	X	X	X	X
Water level >20 ft.	X			X		X	X	X
6-inch								
Water level <20 ft.				X	X		X	X
Water level >20 ft.				X			X	X
8-inch								
Water level <20 ft.				X	X		X	X
Water level >20 ft.				X			X	X

(c) Stainless Steel
(d) PVC
(e) Other dense plastics

Note: Do not use rubber or synthetic rubber such as that used in packers or older bladder pumps.

1.4 Sampling

1.4.1 Typical Ground-Water Sampling Devices

(a) Bailers
  Kemmerer
  Tube
(b) Suction Lift Pump
  Peristaltic
  Hand operated diaphragm
(c) Submersible Pump
(d) Air-lift Device
(e) Tomson Pump (all glass)
(f) Gas Operated Bladder Pump
(g) Gas Driven Piston Pump
(h) Specialized Organic Material Samplers
  Grab Sampler
  Continuous Sampler
  Microbiological Sampler
  Soil-Water Sampler

Detailed discussion of the above listed sampling devices is given in the Manual of Ground-Water Sampling Procedures, pp. 45-54.

1.4.4 Specialized Organic Material Samplers

(a) Grab Sampler (at well head) for non-volatile organics may be used with peristaltic pumps (ground-water depth 20 ft)® or non-contaminating submersible pumps. A Teflon bailer may be used for volatile organic sample acquisition.

(b) Continuous Sampler (at well head) uses a peristaltic pump (shallow conditions) or a non-contaminating submersible pump to force a continuous stream of water through a fixing column using selected adsorbents to concentrate organic materials.

(c) Microbiological Sampler (at well head) uses a vacuum pumping system to draw water samples from shallow depths. Samples to be tested for microbial agents may be collected in a flask; samples to be tested for viruses of pathogenic bacteria may be collected on filters installed in the system.

(d) Soil-Water Sampler (unsaturated zone) can be used to obtain small unsaturated zone samples drawn through a collection trap in shallow applications.

A detailed discussion of these devices and their utilization is presented in the Manual of Ground-Water Sampling Procedures, pp 53-60.

1.5 Field Tests and Sample Preservation

1.5.1 Field Testing

Many parameters are relatively stable. Others such as pH, temperature, etc., will begin to alter immediately upon collection. In order to mitigate this unwanted modification of water quality, testing of sensitive parameters must be performed in the field. Testing may be performed at the well head following sample removal or in-situ by use of a Hydrolab® or similar down-hole device.

Samples requiring more complicated analysis procedures must be preserved and transported to a laboratory. Preservation must be performed in the field, contingent upon analytical parameters of interest. Laboratory analyses should be performed as soon as possible in accordance with EPA Guidelines.

1.5.2 Sample Preservation

1.5.2.1 General typical preservatives currently employed, actions and applications are given:

Preservative	Action	Applicable to:
$HgCl_2$	Bacterial Inhibitor	Nitrogen forms, phosphorus forms
Acid (HNO_3)	Metals solvent, prevents precipitation	Metals
Acid (H_2SO_4)	Bacterial Inhibitor	Organic samples (COD, oil and grease, organic carbon)
	Salt formation with organic bases	Ammonia, amines
Alkali (NaOH)	Salt formation with volatile compounds	Cyanides, organic acids

Preservative	Action	Applicable to:
Refrigeration	Bacterial Inhibitor	Acidity - alkalinity, organic materials, BOD, color, odor, organic P, organic N, carbon, etc., biological organism (coliform, etc.)

1.5.2.2 Organic Parameters

The general method of preserving samples for organic analysis is to exclude air, pack in ice, and transport promptly. Specific recommendations are furnished in the Manual of Ground Water Sampling Procedures, p. 62.

1.5.2.3 Microbiological Parameters

Due to the complicated nature of this type of sampling, reference is made to the Manual of Ground-Water Sampling Procedures, p. 62.

1.5.2.4 Sampling and Preservation Requirements

The following Table B.1, presented from the Manual of Ground-Water Quality Sampling Procedures, pp 63-66, is included to provide specific collection and preservation data in accordance with the analyses of interest. It may be quickly observed that numerous variations occur in volume of sample required per test, type of container, preservative, and holding time. Preservation techniques must be chosen to be consistent with the selected analyses.

TABLE E.1.

RECOMMENDATION FOR SAMPLING AND PRESERVATION OF SAMPLES ACCORDING TO MEASUREMENT[a]

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding Time[c]
Physical Properties				
Color	50	P, G	Cool, 4°C	24 Hrs.[d]
Conductance	100	P, G	Cool, 4°C	24 Hrs.[d]
Hardness	100	P, G	Cool, 4°C HNO_3 to pH<2	6 Mos.[e]
Odor	200	G only	Cool, 4°C	24 Hrs.
pH	25	P, G	Det. on site	6 Hrs.
Residue				
Filterable	100	P, G	Cool, 4°C	7 Days
Non-Filterable	100	P, G	Cool, 4°C	7 Days
Total	100	P, G	Cool, 4°C	7 Days
Volatile	40	P, G	Cool, 4°C	7 Days
Settleable Matter	1000	P, G	None Req.	24 Hrs.
Temperature	1000	P, G	Det. on site	No Holding
Turbidity	100	P, G	Cool, 4°C	7 Days
Metals				
Dissolved	200	P, G	Filter on site HNO_3 to pH<2	6 Mos.[e]
Suspended	200		Filter on site	6 Mos.
Total	100	P, G	HNO_3 to pH<2	6 Mos.[e]
Mercury				
Dissolved	100	P, G	Filter on site HNO_3 to pH<2	38 Days (Glass) 13 Days (Hard Plastic)
Total	100	P, G	HNO_3 to pH<2	38 Days (Glass) 13 Days (Hard Plastic)

TABLE E.1 (Continued)

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding Time[c]
Inorganics, Non-Metallics				
Acidity	100	P, G	None Req.	24 Hrs.
Alkalinity	100	P, G	Cool, 4°C	24 Hrs.
Bromide	100	P, G	Cool, 4°C	24 Hrs.
Chloride	50	P, G	None Req.	7 Days
Chlorine	200	P, G	Det. on site	No Holding
Cyanides	500	P, G	Cool, 4°C NaOH to pH 12	24 Hrs.
Fluoride	300	P, G	None Req.	7 Days
Iodide	100	P, G	Cool, 4°C	24 Hrs.
Nitrogen				
Ammonia	400	P, G	Cool, 4°C H_2SO_4 to pH<2	24 Hrs.
Kjeldahl, Total	500	P, G	Cool, 4°C H_2SO_4 to pH<2	24 Hrs.[f]
Nitrate plus Nitrite	100	P, G	Cool, 4°C H_2SO_4 to pH 2	24 Hrs.[f]
Nitrate	100	P, G	Cool, 4°C	24 Hrs.
Nitrite	50	P, G	Cool, 4°C	48 Hrs.
Dissolved Oxygen				
Probe	300	G only	Det. on site	No Holding
Winkler	300	G only	Fix on site	4-8 Hrs.
Phosphorus	50	P, G	Filter on site Cool, 4°C	24 Hrs.
Ortho-phosphate, Dissolved				
Hydrolyzable	50	P, G	Cool, 4°C H_2SO_4 to pH<2	24 Hrs.[f]
Total	50	P, G	Cool, 4°C H_2SO_4 to pH<2	24 Hrs.[f]

TABLE E.1 (Continued)

Measurement	Vol. Req. (ml)	Container[b]	Preservative	Holding Time[c]
Total, Dissolved	50	P, G	Filter on site Cool, 4°C H_2SO_4 to pH<2	24 Hrs.[f]
Silica	50	P only	Cool, 4°C	7 Days
Sulfate	50	P, G	Cool, 4°C	7 Days
Sulfide	500	P, G	2 ml zinc acetate	24 Hrs.
Sulfite	50	P, G	Det. on site	No Holding
Routine Organics				
BOD	1000	P, G	Cool, 4°C	24 Hrs.
COD	50	P, G	H_2SO_4 to pH<2	7 Days[f]
Oil & Grease	1000	G only	Cool, 4°C H_2SO_4 or HCL to pH<2	24 Hrs.
Organic Carbon	25	P, G	Cool, 4°C H_2SO_4 or HCL to pH<2	24 Hrs.
Phenolics	500	G only	Cool, 4°C H_3PO_4 to pH<4 1.0 g $CuSO_4$/1	24 Hrs.
MBAS	250	P, G	Cool, 4°C	24 Hrs.
NTA	50	P, G	Cool, 4°C	24 Hrs.

a. A general discussion on sampling of water and industrial wastewater may be found in ASTM, Part 31, p. 72-82 (1976) Method D-3370.

b. Plastic (P) or Glass (G). For metals polyethylene with a polypropylene cap (no liner) is preferred.

c. It should be pointed out that holding times listed above are recommended for properly preserved samples based on currently available data. It is recognized that for some sample types, extension of these times may be possible while for other

types, these times may be too long. Where shipping regulations prevent the use of the proper preservation technique or the holding time is exceeded, such as the case of a 24-hr composite, the final reported data for these samples should indicate the specific variance procedures.

d. If the sample is stabilized by cooling, it should be warmed to 25°C for reading, or temperature correction made and results reported at 25°C.

e. Where HNO_3 cannot be used because of shipping restrictions, the sample may be initially preserved by icing and immediately shipped to the laboratory. Upon receipt in the laboratory, the sample must be acidified to a pH <2 with HNO_3 (normally 3 ml 1:1 HNO_3/liter is sufficient). At the time of analysis, the sample container should be thoroughly rinsed with 1:1 HNO_3 and the washings added to the sample (volume correction may be required).

f. Data obtained from National Enforcement Investigations Center-Denver, Colorado, support a four-week holding time for this parameter in Sewerage Systems. (SIC 4952).

2.0 SAMPLING SUBSURFACE SOLIDS (Earth Materials)

2.1 General

The sampling and testing of earth materials may be necessary to augment a ground-water quality study as contamination typically occurs in the unsaturated zone first, before entering the saturated zone. Several reasons exist for solids testing:

(a) Study effects of alteration
(b) Determine actual extent of contamination - not just in saturated zones
(c) Obtain accurate evaluation of microbial populations that may alter pollutants
(d) Solids provide best samples of aquifer microorganisms (samples obtained from saturated zone).

2.2 Sampling Procedures

Sampling of subsurface solids may be conducted by split spoon by Standard Penetration Test (ASTM D-1586-67) equipped with non-contaminating soil sample retainer or by undisturbed methods (ASTM D-1587-67). In any event, sampling, sample extrusion, preservation, shipment and testing must be accomplished in a sterile environment.

Due to the complex nature of the task, the possibility of introducing cross-contamination and the difficulty involved in sample processing, reference is made to the Manual of Ground-Water Sampling Procedures, pp. 72-79, which provides detailed guidelines for soil sample handling.

3.0 SAMPLE RECORDS AND CHAIN-OF-CUSTODY

3.1 General

The maintenance of complete sample records is critical to the monitoring process. The following is a basic guideline for development of sample records and chain-of-custody procedures:

3.2 Sample Records

(a) Sample description--type (ground water, surface water), volume;

(b) Sample source--well number, location;

(c) Sampler's identity--chain of evidence should be maintained; each time transfer of a sample occurs, a record including signatures of parties involved in transfer should be made. (This procedures has legal significance.);

(d) Time and date of sampling;

(e) Significant weather conditions;

(f) Sample laboratory number;

(g) Pertinent well data--depth, depth to water surface, pumping schedule, and method;

(h) Sampling method--vacuum, bailer, pressure;

(i) Preservatives, (if any)--type and number (e.g., NaOH for cyanide, H_3PO and $CuSO_4$ for phenols, etc.);

(j) Sample containers--type, size, and number (e.g., three liter glass-stoppered bottles, one gallon screw-cap bottle, etc.);

(k) Reason for sampling--initial sampling of new landfill, annual sampling, quarterly sampling, special problem sampling in conjunction with contaminant discovered in nearby domestic well, etc.;

(l) Appearance of sample--color, turbidity, sediment, oil on surface, etc.;

(m) Any other information which appears to be significant--(e.g., sampled in conjunction with state, county, local regulatory authorities; samples for specific conductance value only; sampled for key indicator analysis; sampled for extended analysis; resampled following engineering corrective action, etc.);

(n) Name and location of laboratory performing analysis;

(o) Sample temperature upon sampling;

(p) Thermal preservaton--(e.g., transportation in ice chest);

(q) Analytical determinations (if any) performed in the field at the time of sampling and results obtained--(e.g., pH, temperature, dissolved oxygen, and specific conductance, etc.);

(r) Analyst's identity and affiliation.

3.3 Chain-of-Custody

(a) As few people as possible should handle the sample.

(b) Samples should be obtained by using standard field sampling techniques, if available.

(c) The chain-of-custody records should be attached to the sample container at the time the sample is collected, and should contain the following information: sample number, date and time taken, source of the sample (include type of sample and name of firm), the preservative and analysis required, name of person taking sample, and the name of witness. The prefilled side of the card should be signed, timed, and dated by the person sampling. The sample container should then be sealed, containing the regulatory agency's designation, date, and sampler's signature. The seal should cover the string or wire tie of the chain of custody record, so that the record or tag cannot be removed and the container cannot be opened without breaking the seal. The tags and seals should be filled out in legible handwriting. When transferring the possession of samples, the transferee should sign and record the date and time on the chain-of-custody record. Custody transfers, if made to a sample custodian in the field, should be recorded for each individual sample. To prevent undue proliferation of custody records, the number of custodians in the chain of possession should be as few as possible. If samples are delivered to the laboratory when appropriate personnel are not there to receive them, the samples should be locked in a designated area within the laboratory so that no one can tamper with them.

(d) Blank samples should be collected in containers, with and without preservatives, so that the laboratory analysis can be performed to show that there was no container contamination.

(e) A field book or log should be used to record field measurements and other pertinent information necessary to refresh the sampler's memory in the event he later becomes a witness in an enforcement proceeding. A separate set of field notebooks should be maintained for each survey and stored in a safe place where they can be protected and accounted for at all times. A standard format should be established to minimize field entries and should include the types of information listed above. The entries should then be signed by the field sampler. The responsibility for preparing and retaining field notebooks during and after the survey should be assigned to a survey coordinator or his designated representative.

(f) The field sampler is responsible for the care and custody of the samples collected until properly dispatched to the receiving laboratory or turned over to an assigned custodian. He must assure that each container is in his physical possession or in his view at all times or stored in a locked place where no one can tamper with it.

(g) Photographs can be taken to establish exactly where the particular samples were obtained. Written documentation on the back of the photograph should include the signature of the photographer, the time, date, and site location.

(h) Each laboratory should have a sample custodian to maintain a permanent log book in which he records for each sample the person delivering the sample, the person receiving the sample, date and time received, source of sample, sample number, method of transmittal to the lab, and a number assigned to each sample by the laboratory. A standardized format should be established for log-book entries. The custodian should insure that heat-sensitive or light-sensitive samples or other sample materials having unusual physical characteristics or requiring special handling are properly stored and maintained. Distribution of samples to laboratory personnel who are to perform analyses should be made only by the custodian. The custodian should enter into the log the laboratory sample number, time, date, and the signature of the person to whom the samples were given. Laboratory personnel should examine the seal on the container prior to opening and should be prepared to testify that their examination of the containers indicated that it had not been tampered with or opened.